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ELEMENTS  
OF  
OBSTETRIC MEDICINE;

WITH THE  
DESCRIPTION AND TREATMENT  
OF SOME OF  
THE PRINCIPAL DISEASES OF CHILDREN.

BY  
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PHYSICIANS TO UNIVERSITY COLLEGE HOSPITAL.

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OBSTETRIC MEDICINE;

DESCRIPTION AND TREATMENT

THE PRINCIPAL DISEASES OF CHILDREN

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WHITEFRIARS  
LONDON



TO THOSE GENTLEMEN,

NOW BECOME A NUMEROUS BODY,

WHO

DURING THE LAST TWENTY YEARS

HAVE HONOURED HIS PRELECTIONS ON OBSTETRIC MEDICINE WITH THEIR ATTENDANCE,

THIS WORK

IS RESPECTFULLY INSCRIBED,

BY THEIR FAITHFUL FRIEND,

THE AUTHOR.

17, *Russell-place, Fitzroy-square* ;  
*January 1, 1841.*

TO THOSE OFTEN

AND OFTEN

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## PREFACE

TO THE SECOND EDITION.

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THE present edition has been undertaken with the view of furnishing for the student and practitioner a compendium of Practical Midwifery, sufficiently concise to answer the purposes of a text-book, and yet so extensive as to comprise the leading facts and more important doctrines of the science.

The general arrangement of the work will be found to be essentially the same as that of the former edition. In making the required abridgements, the Author has endeavoured to preserve a continuity of narrative, and to present in a condensed form the more important matters developed in his larger work. With this view, the omissions have been chiefly confined to cases and other collateral evidence, and to such parts of the original as were deemed of subordinate interest;—such passages, however, have been duly referred to, and ample references made throughout the text to the most valuable obstetric writings with which the Author is acquainted.

For the purpose of illustrating some of the more practical points, wood-cuts have been introduced, principally taken from the engravings published in the former edition. For the convenience of those who may require further illustration, the entire set of Plates belonging to that work has been published as an Atlas, and may be separately purchased.

The Author indulges the hope that the arrangement and execution of the work will be found such as to merit the approbation of the public. His great object has been to make it *practically useful*, and to inculcate those principles of practice which the experience of many years has convinced him are most safely to be relied on.

Before concluding, he feels it his duty to express his great obligation to his friend Mr. F. W. MACKENZIE of Bayswater, for much substantial assistance in the preparation and revision of the present edition.

17, *Russell-place*,  
Jan. 1, 1841.

## PREFACE

TO THE FIRST EDITION.

---

ON undertaking this work the Author proposed to himself to furnish the Profession with a Text-Book, which should contain a moderately extended view of the Elements of Obstetric Medicine, together with references to the best authorities, for the facts upon which have been founded both its Theory and Practice. How far he has succeeded in carrying these purposes into effect, he must leave the well-informed reader to determine. It may be proper to remark, that the materials of which these volumes are composed are the accumulation of many years, the result of knowledge acquired both by extensive practice and by almost exclusive reading on the subject of the work. The References to Cases and other forms of Illustration may appear so numerous as to suggest a suspicion that a sufficiently severe discrimination had not been resorted to in their selection. Without pledging himself for the accuracy or even the truth of all the cases given, as reported in books, the Author begs to assure his readers that he has rarely, if ever, admitted even into his Note-Book statements not possessing strong claims, at least, to verisimilitude; nor has he derived them from sources of

insufficient authority to entitle them to much professional consideration. Some of the most important narratives in the work may have been deemed of inferior value, by reason of their remote date. Such an observation might perhaps especially apply to the very frequent references to the German Miscellanies. But with respect to that work, it may be truly remarked, that the Ephemerides abound with more valuable facts in Medicine and its auxiliary sciences, and those less encumbered with useless Theoretical Speculations, than the national Transactions of the same period of any other country in Europe.

The greatest care has been exercised to authenticate the numerous Pathological Histories referred to throughout the work, a great majority of the cases having been entirely perused by the Author for that purpose, or so much of all of them as the point or doctrine to be proved seemed especially to require. In exception, however, to the unlimited correctness of this fact, it should be stated, that in a very few instances, for want of access to the original authority, the narrative of such reporters as were deemed entitled to his confidence has been adopted.

To those Members of the Profession who have so kindly complied with the Author's request, at the commencement of his undertaking, by transmitting to him many curious and valuable cases, accompanied frequently with excellent reports of their modes of treatment, with its results, he begs to return his sincere thanks. Of many of them, his readers will observe, he has gratefully availed himself; and he trusts, that those gentlemen whose narratives have not appeared, will attribute the omission to no want of respect for the writers, but gene-



rally to the more than convenient length of their communications.

In the course of a work of such extent, undertaken as it has been by one person, a Physician engaged in other most responsible professional duties, it cannot be expected that all the subjects of the present work, so numerous and multifarious as they must be acknowledged to be, shall have received that uniform equality of illustration to which a Treatise of this kind might properly have laid claim. The Author can only regret that the execution of the whole and of every part of the undertaking is not more worthy of the liberal support with which it has been honoured by the Profession.

The Author is happy to think that, although the work has gone considerably beyond the limits originally contemplated and announced, both in the extent of the Letter-press and number of Plates, the price has not been suffered to exceed the sum stipulated in the Prospectus.

Of the numerous lithographic prints which are given throughout these volumes the Author may perhaps be permitted to speak with almost unmixed satisfaction, as in his opinion they are generally executed with great truth and spirit. He feels therefore much obliged to Mr. W. Fairland for the substantially additional value which these pages have unquestionably derived from his excellent delineations. For the beauty of the line drawings exhibited in the representations of Instruments, given in most of the recently published Plates, he is especially indebted to M. Rue, of Mr. Hullmandel's Establishment. The number of Plates promised was upwards of 60: the number given is 65;

of which 17 are Plates of double size: not to add, that many of them are in fact representations of a considerable variety of kindred subjects delineated on the same page. In conclusion, the Author trusts that the work, now brought to a close, will gain for him the honest approbation of his readers, as having furnished for the student, by its direct instruction, the means of acquiring an accurate knowledge of a very important department of medical science, and for gentlemen already established and experienced in practice, facilities by its numerous references for acquiring a more substantial and profound acquaintance with any division, or with the entire range of subjects of which it treats, than is usually considered necessary for the general purposes of the profession. Should these hopes be happily realized, he will feel himself rewarded for many years of toil and anxiety.

17, *Russell-place, Fitzroy-square,*  
*July 25, 1836.*

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The Second Class of Instruments are such as are calculated to ensure the preservation of the more important life of the Mother, at the expense, if indispensable, of that of the Child—The Instruments of this Class are the long Scissors of Dr. Smellie, or the Perforator of Dr. Denman, to which are to be added several Forms of Extracting Instruments for completing the Delivery after the previous use of the Perforator—Here we have to enumerate two or three different varieties of Guarded Crotchets, some for the Extraction of the Head, others for that of the Body; together with a variety of Instruments for reducing parts of the Child already mutilated into smaller portions, for the convenience of being more readily extracted without detriment to the easily lacerable tissues of the Mother. Under this head the Author treats at considerable length of the precautions necessary to be used in the performance of Embryotomy Operations, and then concludes the subject with a few brief Remarks on the Cæsarean Operation . . . . .



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## INTRODUCTION.

CONTAINING AN OUTLINE OF THE PLAN OF THE WORK.

---

IN advanced periods of the cultivation of some of the more important arts of life, the principle of division of labour has been recognised as useful and necessary towards their further improvement and perfection. In the pursuit of medical science as well as in its practical application, the same principle has been acknowledged and made available to the best purposes of medical education. Without neglecting any branch of study, essential to the acquisition of competent medical knowledge in all its departments, it seems proper that individual members of the profession should undertake to teach particular portions of the general science ; and more especially those branches of it with which their accidental pursuits or opportunities may have made them most familiarly acquainted. On this principle are founded in Universities and other Great Schools throughout Europe, certain established arrangements, for assigning to different professors or lecturers different allotments of duty, corresponding with the various branches of science or literature required to be taught. In the greater number of such Schools and Universities, one of the acknowledged branches of education is that of Midwifery, or Obstetric Medicine, in its most comprehensive sense. Thus understood, Obstetric Medicine may be said to be identified with all the scientific principles and rules of art that can be made applicable, not only to the practice merely of Midwifery as synonymous with the professional assistance usually given to women during parturition, but also to the medical superintendence and treatment of their peculiar functions and diseases. Accordingly, in all the best-appointed schools of medicine in modern times, it is made the duty of the Professors of Midwifery to deliver lectures on the peculiar organs, functions, and diseases of the human female.

But so large a proportion of the diseases of women have reference to their characteristic attributes as mothers, or else to certain states of functions essential to their due qualification to become mothers, that heads of families have very naturally taken for granted that gentlemen practising midwifery, and therefore presumed to be especially conversant with the diseases of women, should equally deserve their confidence as medical attendants on their offspring. Accordingly a pretty ample portion of this latter practice, viz. the treatment of the Diseases of Children, does, in point of fact, usually devolve upon those physicians and surgeons who are willing to engage in the more laborious occupations of Practical Midwifery. But this very general decision of the public has been sanctioned by the approbation of higher and more competent authorities; as may be seen fully exemplified in the arrangements now existing, for the efficient distribution of professorial duties, in all reputable schools of medicine in the world. It is scarcely necessary to observe that in all these arrangements the teachers of Midwifery, who are the lecturers on the diseases of women, are also charged with the accessory duty of giving instructions for the treatment of the Diseases of Children. Influenced by these considerations, the Author of the present undertaking feels himself entitled to presume, that an appropriation of subjects which has been found most useful and convenient for communicating knowledge, orally and by lectures, to students of Medicine in PUBLIC SCHOOLS, may not be inconvenient, or otherwise objectionable, when the matter to be communicated is intended to be addressed, in a published work, to the more advanced or already educated members of the profession. It is accordingly the object of the work now about to be submitted to the reader, to treat of the art of Midwifery together with those other branches of medicine and surgery which are usually taught by the Professors of Midwifery in the principal medical schools of this and other countries.

It is the usual practice for lecturers on midwifery, and one which indeed cannot well be dispensed with on the part of teachers, who have to supply their pupils with opportunities of attending labours, to discuss the whole of the obstetric department of their subject at the beginning, or at an early period of their course; and then to take up in succession, respectively, the two remaining departments, the Diseases of Women and the Diseases of Children. The Author, however, hopes to be able



to interest a greater number of readers by adopting what, he flatters himself, will be considered a more consecutive and philosophical arrangement of his matter.

The peculiar diseases of women are principally affections of organs which are proper to the sex. Of such organs there are diseases of structure and derangements of function. To obtain an accurate knowledge of either of these varieties of morbid condition, it is manifest that an acquaintance must be previously possessed with the structure and functions of the same organs in their healthy state. In accordance with these views, the Author has chosen for himself an arrangement which he believes will enable him to treat of all the subjects, which he will have to discuss, in their most obvious connexion and natural juxtaposition under their respective heads of, **STRUCTURE, FUNCTIONS,—AND MORBID STATES, BOTH OF STRUCTURE AND FUNCTIONS.**

The Pelvis being the frame-work to which are naturally attached most of the organs interested in the diseases of women, the work will properly commence with a precise anatomical description of that part of the human skeleton. Then will follow a short statement of its uses or functions during health. Next will present itself for examination, the pelvis in its diseased state, or when become the subject of malformation or distortion incompatible with the performance of one or more of the most important functions which it has to sustain in the destinies of an adult female. Thus under one principal head of subject, will be given everything necessary to be known about the pelvis; including its anatomy, or a description of its structure, form, and relations in the human body; its physiology, or a description of its uses or functions; and, lastly, its pathology, or a description of its diseased conditions. Under their several heads respectively will in like manner be described and treated of, all the organs and structures attached to or contained within the pelvis; first, simply and anatomically in their healthy states; secondly, as agents in the performance of healthy functions; and, thirdly, as the subjects of morbid conditions or actions. Thus it may be easily seen, that at a comparatively early period of his labours, the Author, by this arrangement, will have it in his power to bring under the consideration of his readers, some of the most interesting and important diseases to which the human female is subject. After, for example, giving a brief anatomical description of the unimpregnated uterus, he will be competent, according

to the principle of his plan, to proceed without delay to the consideration of its functions, and, especially, of the one great function *MENSTRUATION*, by which it is qualified to become the subject of so many others. To this will follow a practical examination, including the causes, the history, and the treatment of all the diseases incident to this important organ; of its disorders, first of function, which will include the irritable uterus, disordered menstruation under all its forms, leucorrhœa, sterility, &c. And, lastly, its diseases of position and of structure; viz., morbid descent, prolapsion, procidentia, and hernia; inflammations and indurations of all kinds, producing scirrhusities, cancer, fungoid enlargements, &c.; diseased formations within its cavity, producing polypi, false conceptions, hydatids, &c., or within its proper substance, producing tumours of other kinds; together with numerous other diseased phenomena of a painful, and, ultimately, in too many cases, of a fatal character. After thus describing the uterine system in its unimpregnated condition, under *ANOTHER BRANCH* of the same general head of subject will be treated of, the modified anatomy, the altered or superadded functions, and the peculiar diseases of the *GRAVID UTERUS*.

In this part of our investigations will be presented to the reader, the principal facts appertaining to the curious subject of conception; as also, the development of the ovum, from the first moment of its mysterious existence, to its mature birth at the full period of gestation. Here, also, will be considered all the healthy phenomena of the pregnant state. In the remaining section of this interesting department of our subject will be considered such other conditions or results of pregnancy as are to be identified with disordered actions. This part of the inquiry will include the subjects of malpositions of the pregnant womb; such as prolapsion, retroversion, hernia, obliquities, &c., at various periods of gestation; painful states, and unkindly development of the uterus from rigidity or other causes; inflammations; separation of the ovum from its parent structure; diseases and death of the ovum in utero, productive of serious consequences to the mother; fevers and other constitutional diseases complicated with pregnancy; morbid states or actions of organs contiguous to the gravid uterus, as well, also, as of organs more or less remotely situated, but, nevertheless, exquisitely consenting with that great centre of female sympathies. Here also then, as in

other parts of our undertaking, it may be observed that the same order and consecution of subjects are strictly pursued.

There is, first, the structure of the gravid uterus, accurately described and distinguished from that of the unimpregnated womb; then are indicated its newly-acquired properties and actions, comprising the ordinary phenomena of gestation; and, finally, the diseases both of structure and function, which occasionally present themselves during pregnancy.

The state of pregnancy happily consummated is naturally followed by parturition, which is usually a safe and healthy function.

But parturition, when healthily and happily performed, is simply a functional process, and all the knowledge that can properly have reference to it, when it presents itself in this form, is knowledge of a mere function undisturbed by disease.

When, on the other hand, this important function becomes untoward; when accompanied by more than ordinarily violent actions of the womb, or of the heart and arteries; when it threatens to involve one or more lives in great jeopardy; then, indeed, the altered functional condition of the sufferer becomes a dangerous disease and a proper subject for active pathological treatment.

In this part of the work will accordingly be introduced such a development of principles and rules of practice as is usually designated in books and in schools of medicine, THE THEORY AND PRACTICE OF MIDWIFERY; which will comprise an enumeration of all the varieties of labours; a practical distribution of them into classes, orders, and subdivisions, as founded respectively on their characters and causes; and, finally, an ample descriptive exhibition of the means, whether manual or instrumental, preventive or remedial, best calculated to ensure, if possible, the preservation of both the mother and her offspring, or, at least, all the good attainable by the most judicious indications of our art in its present state of acquirement.

There is one peculiarity which especially attaches to all the functions of the gravid uterus, and which, inasmuch as it appears to influence the actions and results of parturition more than it does those of any other function of that organ in its gravid condition, it seems proper to notice in this place; and that is, that they constitute an assemblage or class of actions and conditions superadded to the natural attributes of the womb in its



unimpregnated state. The functions both of life and of health may be said to be perfect in the absence of that condition of the uterus which constitutes gravidity. May it not be reasonably presumed that to this circumstance are, in a great measure, to be attributed the extraordinary constitutional disturbances, the dangerous fevers, and the intense inflammations, which we have so frequently to encounter in the puerperal state? On a fitting occasion, this suggestion may obtain further illustration. Suffice it for the present to apprise the reader, that the history and treatment of the diseases of the puerperal state will occupy the concluding section of the obstetric department of our undertaking.

The Diseases of Children will be treated of in the latter part of the work, and will be arranged under certain heads of subject, founded on the nature of the tissues principally or exclusively affected. This arrangement is not perfectly unobjectionable; for it frequently happens that more tissues than one are implicated by the same disease. But, upon the whole, the Author prefers it as one sufficiently practical for his purpose, and as bearing something of analogy, at least in its principle, to the plan which he has adopted in the preceding and larger portion of his work. Accordingly, he will treat of the diseases of children under the several divisions following:—

1. Of doubtful states of vitality, and of anomalous formations and congenital diseases presented at birth.
2. Of the diseases of the digestive organs, including especially those of the mucous membranes.
3. Of the circulation of the blood, and some of its principal derangements.
4. Of some of the functions and disorders of the respiratory organs.
5. Of some of the more important diseases of the brain and nervous system.
6. Of the more popular cutaneous affections of infancy.

## CHAPTER I.

OF THE PELVIS.—This portion of the architecture of the human skeleton may be presented to the reader under several different aspects and relations, of which none can be deemed uninteresting to the student of Midwifery. We have, first, the foetal pelvis, remarkable for the rapid changes and modifications which it undergoes during its development in the foetal state. Then there is the pelvis of the young subject, after birth, retaining for several years some of its principal foetal distinctions. Again we have the adult pelvis, completed both as to its permanent structure and dimensions, but presenting many characteristic differences, when examined with a reference to the two sexes. Sometimes we speak of the recent or living pelvis, and then of course maintaining its proper connexion with the parts which are naturally attached to it, and at other times of the dry or prepared pelvis, when, after the removal of those parts, it is made more convenient for the purposes of demonstration. The teacher of Midwifery has most frequently to determine the attention of his pupils to the properties, whether natural or accidental, of the adult female pelvis, and then principally to its capacity and dimensions: and here we have the distinctions of small, large, standard, well-formed, deformed, rickety, and distorted pelvises. In a work like the present, it would seem proper to offer a few descriptive observations in illustration of the pelvis under these several circumstances.

The pelvis is that assemblage of cartilages, or of cartilages and bones, or of bones almost exclusively, according to the age of the subject, which is intermediately situated between the lowest of the lumbar vertebræ and the superior extremities of the thigh bones.

The term pelvis, which the word basin represents both in the English and French languages, is derived from  $\pi\epsilon\lambda\upsilon\varsigma$ , a Greek word of similar sound and of the same meaning. The resemblance of the pelvic cavity to the well-known domestic utensil of that name is the obvious reason of its anatomical designation.



OF THE PELVIS OF THE FŒTUS.—During the earliest weeks of gestation, the pelvis consists of portions of a gristly or cartilaginous structure, imbedded in a substance of a pulpy or gelatinous consistence, and connected together by the yet tender external integuments and rudiments of ligamentous tissue.

About the middle of the ninth week of gestation, minute deposits of osseous structure may be observed to have been secreted in or about the centre of each of those lateral cartilages, of which the whole are eventually to be converted into iliac bones.

Then successively may be seen deposited the materials of each os ischium and os pubis, at first in very minute quantities; but in daily and rapidly increasing progression, as to the amount of the deposit. The posterior portion of the pelvis is the last in the order of development to become in any degree ossified; and then the process commences at the superior link or false vertebra, and proceeds successively to the inferior: but even at the full period of gestation, the caudal termination of the sacrum, or the os coccygis, is in no degree ossified. This gradual development of the foetal pelvis may be seen very satisfactorily illustrated in PL. I. FIG. III, IV, V of the Atlas. It is intended, no doubt, as a provision of nature for the rapid growth of the young subject during its foetal state; whilst, in reference to parturition, in cases especially of breech presentation, it becomes the means of securing an easy and convenient packing of the presenting part during its transit through the parturient passage.

OF THE PELVIS OF THE YOUNG SUBJECT AFTER BIRTH.—At birth, the pelvis is only very partially finished as to its ossification: the intermediate cartilages between its several constituent bones, continuing to bear a very considerable proportion to its entire assemblage of bones and cartilages. The extension of the osseous proportion is not, indeed, very rapid even after birth; and the several portions of the ossa innominata, to be hereafter described, remain distinct, and separated by cartilages, till within a very short interval of what is called the age of puberty. The most interesting circumstance incident to the pelvis of the infant and the child, is the great similarity of its form in both sexes until about the tenth year of their respective ages. Nature then begins to declare her special intentions with respect to the destinies of either sex, and the pelvis of the one becomes characterised by the comparative smallness of its cavity, strength of its

parietes, and the narrowness of its dimensions from side to side; and that of the other, by its lightness, shallowness, and daily-increasing width between its iliac extremities.

OF THE ADULT PELVIS.—When the pelvis has acquired its proper size and form in the adult subject, it bears a certain most desirable proportion in weight and bulk to the other parts of the osseous system. When these mutual proportions are perfectly maintained, then this part of the body is said to be perfectly symmetrical and beautiful. But the proportions which are considered most beautiful and symmetrical in the one sex are not deemed so in the same degree, or even at all, in the other. Hence it is a matter of common observation, that this portion of the female skeleton is much wider and more expanded than that of the male. But, besides being much narrower between one iliac extremity and the other, the male pelvis is distinguished from that of the female by many other important and characteristic differences. In all nations, of which we have any authentic history, the man has been the larger and the stronger subject. On him have accordingly devolved the more laborious occupations, and the more perilous pursuits incident to the support and protection of his family. He has been principally the tiller of the ground, the warrior, the traveller, the athleta, the knight errant, and the tyrant. For him, accordingly, nature has allotted a skeleton of a more massive carpentry. The parietes of his pelvis are made of denser and heavier materials; its surfaces are made scabrous and uneven, sometimes spiculated, or furrowed out into deep apertures and sinuosities, to give secure fastenings to the immense ligaments and tendons which serve to connect together its constituent bones, to connect the whole of it with the thigh bones, and to give attachment and leverage to many of the most powerful muscles of the human body. Adapted also partly for strength, but principally for specific purposes in a sexual point of view, the male pelvis is much deeper, but in other respects, smaller than that of the female as to its interior cavity; more cordate and less oval at its brim; shorter in all the diameters of its outlet; having its arch of the pubes much narrower, and its sacrum distinguished by a greater degree of curvature. Add to all, the greater dimensions in width and depth, and smaller in distance from each other, of its acetabular cavities. See PL. I. FIG. II. of the Atlas.

## OF THE CONSTITUENT BONES OF THE PELVIS.

**THE SACRUM.**—The most largely developed portion of the spinal column, of which this bone forms the base, occupies the posterior part of the pelvis. It is formed by the union of five, occasionally of six, vertebræ, of which the conformation is so modified as especially to adapt them for the purposes which they serve. In other parts of the spinal column, considerable movement being required, the mode of connexion of its vertebræ is such as to secure the attainment of that object. But, in the sacrum, which receives the weight of the entire trunk on its base, and transmits it laterally through the medium of the ossa innominata to the lower extremities, solidity is an essential object: hence the several parts, each to its immediately adjoining portion, are immovably united together by ankylosis. When viewed in its natural state, it will be seen that the direction of the sacrum is not vertical. It is inclined obliquely downwards and backwards; so that an angle is formed with the lumbar portion of the column, which is called the sacro-vertebral angle or promontory, to which more particular reference will be made hereafter. Its form is somewhat triangular, the base being determined upwards, and the apex in the opposite direction. The anterior or pelvic surface is concave, and marked by four transverse ridges, which indicate the original separation of the five vertebræ of which the sacrum is made up. Externally and immediately opposite to those ridges are four, sometimes five foramina, called the anterior sacral, placed nearly vertically one over another. They transmit the anterior branches of the sacral nerves, with some veins and small arteries. The posterior or spinal surface is convex in the same degree as the anterior is concave. In the median line it presents a vertical crest, in continuation of that formed by the spinous processes of the lumbar vertebræ. Externally the posterior sacral foramina, smaller in size than the anterior, serve to give passage to the posterior branches of the nerves. These foramina are placed between two rows of tubercles, which represent the articular and transverse processes of the vertebræ. The lateral surfaces, broad and thick superiorly, are partly covered by cartilage, for connexion with the ossa innominata; whilst the anterior are very thin, and give attachments to the sacro-ischiatic ligaments. The base of the sacrum elongated transversely presents in the middle an oval



surface, by means of which and two articular processes, a connexion is established between this bone and the lowest lumbar vertebra, in the same manner as between other parts of the column. Behind the oval surface or body is the commencement of the sacral canal, which thus becomes a continuation of the spinal canal formed by the apposition of the true vertebræ. The apex has a smooth surface for articulation with the coccyx. The analogy to vertebræ, gradually decreasing towards the lower extremity of the sacrum, is here wholly lost, so that the ossa coccygis can scarcely be recognised to present even a rudiment of the character of vertebræ.

**THE OS COCCYGIS.**—The coccyx consists of three or four small pieces, which diminish in size from above downwards. The first has small laterally projecting processes, by which it is connected to the sacrum. The last is a small rounded ossicle. The coccyx gives continuousness to the curvature of the sacrum, and furnishes points of attachment to the sacro-ischiatic ligaments, and the coccygeus muscle. The degree of motion of which the coccyx is susceptible, is very various. In general, however, it is much more considerable in the female than in the male subject. This greater mobility in the female obviously serves the purpose of permitting the greatest possible space for the passage of the head of the foetus. In some cases its connexion with the sacrum is solidified, even in the female; in which event it is rendered liable to fracture during parturition.

**THE OSSA INNOMINATA, ossa coxarum.**—These form the lateral and anterior boundaries of the pelvis. Each bone consists, in early life, of three distinct parts; viz. the ilium, ischium, and pubis; of which, the first forms the largest, and the last the smallest portion of the entire bone. The shape of the os innominatum is very irregular, contracted towards the middle, and expanded towards the extremities. The outer surface is divided into two unequal parts by a deep circular cavity, the acetabulum, into which is received the globular head of the thigh bone. In this cavity the three divisions before alluded to are united, each to both the others. The part of this surface posterior to the acetabulum, the dorsum of the ilium, considerably expanded, triangular, and convex, consists altogether of the ilium, and gives attachment to the glutei muscles. Anterior to the acetabulum, the outer surface presents a large foramen, the obturator or thyroïd, differing in shape in the male and female.

It is bounded superiorly by the pubis, inferiorly by the tuberosity of the ischium; on the outer side by the acetabulum, towards the median line by the rami of the pubis and the ischium. The inner surface is divided into two parts by a line, called the *linea ileo-pectinea*, which being continued around the pelvis, divides the superior or greater pelvis, from the inferior or smaller cavity, which is the proper or true pelvis of Midwifery. Above the *linea innominata*, as the line just indicated is also sometimes called, is a concave surface, the *iliac fossa*, occupied by the *iliacus* muscle; and posteriorly there is a rough surface, partly tipped with cartilage for connexion with the sacrum. Whatever of inner surface is situated below the *linea ileo-pectinea* enters into the formation of the true pelvis. It includes the obturator foramen, external to which is a broad inclined plane to be afterwards noticed, and internal to it a smooth surface, of which a part gives attachment through the medium of cellular tissue to the bladder. The obturator hole, in the living subject, or in the recent state of the parts, is occupied by a dense fascia, which completely fills it up, except superiorly, where it affords a passage to the obturator vessels and nerve. The aperture through which these pass is partly formed by a groove directed obliquely forwards and inwards along the under surface of the *os pubis*. The obturator muscles cover the fascia and contiguous parts of the bone. The superior border of the hip bone is named the crest of the *ilium*. The posterior presents two notches, which enter into the formation of the *sacro-ischiatic foramina*. They are separated by the spine of the ischium. The anterior portion may be divided into two parts, one of which is vertical, and by being connected with the corresponding part of the bone on the opposite side, forms the *symphysis* of the *pubes*; whilst the lower portion inclines obliquely outwards and downwards, and forms one of the sides of the *pubic arch*.

OF THE ARTICULATIONS AND FASTENINGS OF THE PELVIS.—The bones which enter into the formation of the pelvis are in general most firmly connected one to another. This solidity of union is indispensable to the capability of maintaining the erect position of the body, and especially to progression. It is remarkable, however, that the articulations, which are so very solid, when solidity alone is required, become somewhat softened and relaxed during gestation, especially towards the period of its termination, so as to allow of some small degree of enlargement, or at all



events of modification of the form of the pelvic cavity when a child of large size is to be transmitted through it. This laxity of connexion among the bones of the pelvis is a principal cause of the difficulty of progression which sometimes occurs both immediately before and after parturition.

The connexions established between the several component parts of the pelvis are those which unite, 1st, the sacrum and the coccyx; 2nd, the sacrum and the ossa innominata; and 3rd, the ossa innominata, the one to the other. The union between the sacrum and the coccyx, as well as between the several pieces of the coccyx, is analogous to that which exists in the other parts of the spinal column, consisting of interposed fibro-cartilaginous substance and an anterior and posterior fascial band of ligamentous fibres. The extension downwards of the posterior ligament ends with the termination of the spinal canal at the apex of the sacrum. The connexion between the sacrum and each os innominatum, called the sacro-iliac symphysis or synchondrosis, is perhaps the strongest in the human body. The corresponding osseous surfaces are in some degree separated from each other by each being tipped with a thin cartilage; but the effect of the mechanism of this articulation is, that the ridges of one of its surfaces corresponding with the deep hollows of the other, are mortised together in such a manner, as scarcely to admit of the possibility of dislocation. The posterior part of the sacro-iliac junction is very rough, and affords attachment to irregular, and very numerous and strong ligamentous fibres, called the posterior sacro-iliac ligament, disposed transversely between both bones. It is to the presence of this ligament that much of the firmness of the articulation is to be attributed. A bundle of fibres in nearly the same situation, but stretching in a direction obliquely vertical, is sometimes described separately, under the name of the inferior sacro-iliac ligament. Above and in front, the articulation is farther supported by ligaments named from their respective positions. That in front of the joint especially is very thin and membranous. In addition to the foregoing ligaments, by which the union between the sacrum and the os innominatum is chiefly, if not wholly maintained, there are others, the sacro-ischiatic ligaments, which would seem to be destined to complete the walls of the pelvis. The posterior or larger sacro-ischiatic ligament is attached by one extremity to the tubercular eminences on the side of the sacrum and to the

coccyx; and by the other extremity, to the tuberosity of the ischium. The anterior sacro-ischiatic ligament is considerably intermixed with the preceding at its attachment to the sacrum, and is inserted into the spine of the ischium. These ligaments have the effect of converting the ischiatic notches into foramina, which give transmission, the larger to the pyriformis muscle, and to the gluteal, ischiatic, and pudic vessels and nerves; and the smaller to the obturator internus muscle, and to the pudic vessels and nerves.

The articulation of the ossa innominata, at the median line in front of the pelvis, is called the symphysis of the pubes, and is formed by the close approximation of two oval surfaces on the inner border of the vertical part of each bone. Each osseous surface is covered by cartilage or fibro-cartilage; which is thicker anteriorly than behind, in consequence of the bones not approaching each other so closely in the former as in the latter direction. Between the opposite surfaces of the bones which form this symphysis is a small quantity of a softish and yellow tissue, similar to intervertebral substance. The entire articulation is surrounded by ligamentous fibres. Those situated in front, called the anterior pubic ligaments, are of considerable strength, disposed obliquely, and are evidently continuous with the aponeurosis of the external oblique muscles of the abdomen. The sub-pubic ligament, of which the name indicates the position, occupies the apex of the triangular space formed by the divergence of the rami pubium. The ligamentous fibres above and behind the symphysis of the pubes are inconsiderable. The obturator ligament is properly a membrane, and serves to fill up the obturator foramen, leaving however a small space at the upper part of it, through which the obturator vessels and nerve pass. It is covered on both surfaces by the obturator muscles.

OF THE DIMENSIONS OF THE FEMALE PELVIS.—Having described the several constituent bones of the pelvis, the mechanism of their articulations, and the kind of materials which nature has employed to bind them together, so as to form a most important portion of the skeleton as it exists in both sexes; the author is now prepared to undertake a description of the pelvis as a whole, and as it especially forms the osseous outwork of the parturient passage in the female. PL. I. FIG. I. of the Atlas. The properties of the pelvis which have the most direct influence upon the function of parturition, are the dimensions of the tube or passage

which occupies the space within its parieties. The word "standard" has been applied as a descriptive epithet to pelves of certain average dimensions, such as are considered common to the greatest number of well-formed women. It has been said that Dr. Burton, of York, (see "An Essay towards a Complete New System of Midwifery, &c., by John Burton, M.D.," ) was the first person in this country who submitted to the profession an accurate admeasurement of the female pelvis. (Mackensie's Lectures on Midwifery, MSS.) The method suggested by Dr. Burton, for measuring this important part of the body, was so well calculated to furnish accurate results, that it has ever since been adopted by teachers and practitioners in midwifery. In speaking of the entire pelvis, it may be useful in this place to allude to a distinction recognised by Dr. Burton, and much insisted upon by Continental writers, between the hypogastric cavity, which has been called the superior or large pelvis, and the cavity which is bounded superiorly by the linea ileo-pectinea, which has been called the true or small pelvis.

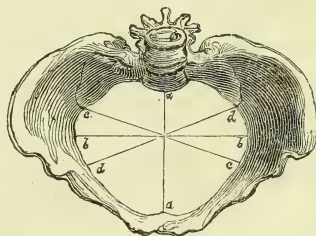
The parietes of the hypogastric cavity are furnished anteriorly by the soft distensible structures which form the hypogastrium in front, laterally by the smooth costal surfaces of the iliac bones, cushioned by muscles as already described, posteriorly by a lumbar portion of the spine and inferiorly by the linea ileo-pectinea. As a free communication exists between the hypogastric cavity, or that of the superior pelvis, and the inferior cavity, or that of the proper pelvis of midwifery, the former has for that reason been sometimes called the false pelvis. From the anterior parietes of the hypogastric cavity consisting of almost unboundedly yielding structures, it has not been usual, nor is it indeed practicable, to offer any standard admeasurement of its capacity. The width, however, of its brim is measured by a line taken from the remotest point of the costal edge of the crest of the ilium on one side, to a corresponding point of the ilium of the other side. This line has been called its lateral or transverse diameter, and measures  $10\frac{3}{4}$  inches in the best-formed women. The parietes of the false pelvis form the natural couch on which the uterus may be said to repose during the latter months of gestation; and as the posterior portion of it is bounded by a projecting part of the spine, and it can only yield in front, it becomes important that its lateral parietes should be broad, smooth, slightly hollowed out, and diverging from the inferior pelvis at such an angle, as



specially to adapt them for giving support to large portions of the pregnant womb during its greatest natural distension, most advantageously to the security of its contents, and to the general influences and results of the function in which it is engaged. Accordingly the iliac sections of the superior pelvis appear to be so constructed, as if they had been formed on purpose to ensure the attainment of these several objects.

OF THE INFERIOR OR SMALL PELVIS.—This is the proper pelvis of midwifery. Whilst the superior or false pelvis gives convenient lodgment and security to the uterus during its latter months of gravidity, it is this that forms the boundaries of the passage through which its contents are to be transmitted at the full period of gestation. Hence it is to the dimensions and other properties of the inferior cavity, that the obstetric practitioner has to determine his principal attention. The bones which constitute the boundaries of this cavity are so constructed and mutually connected, as to form the parietes of a pretty regular tube or canal. The commencement or superior opening into this tube is often called its superior aperture. The space of this part, by reason chiefly of the projection forwards of the sacro-vertebral promontory, being something smaller than within the actual cavity, it is usually called by the French the superior strait. In this country it is most frequently designated the brim of the pelvis. The inferior termination of the pelvic passage, is called its inferior aperture, sometimes its inferior strait, but generally in England its outlet. The space in the interior of the cavity being something greater than it is found to be at its apertures, it has usually been deemed sufficient to give the diametrical dimensions of the pelvis only at those parts.

OF THE BRIM.—This boundary forming the entry into the cavity is always made the subject of the first admeasurement.

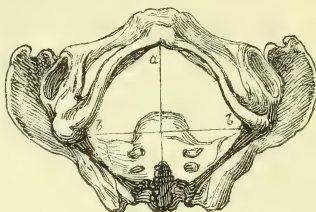


It is presumed to include a space of an imperfectly circular form. Lines are accordingly drawn through its centre, from

and to, opposite points of its circumference. These lines are called diameters. The space to be measured not being, however, perfectly circular, the diametrical lines, or rather the lines somewhat inaccurately expressed by the term diameters, must be of unequal length. Hence the epithets long and short, as applied to at least four of the principal lines which are thus employed to measure the pelvis. The brim or superior aperture is measured by the four following lines; 1st, by a line taken transversely from the extremity of the space on one side, through its centre, to the opposite extremity on the other; 2dly, by another line, drawn also through the centre of the space, which will generally bisect the former at right angles, from the sacro-vertebral angle, to the symphysis pubis; and 3dly and 4thly, by two lines extending from the sacro-iliac junctions, respectively of either side, obliquely across the centre of the space, to opposite points of its circumference anteriorly. The first of the above lines being the longest that can be drawn across the space in question, provided it be drawn through its centre, is called the long diameter. It is also called the lateral, because it measures the space from side to side; and the transverse, because it is drawn transversely across the space which it is intended to measure. Its length is five inches and a quarter. See Atlas PL. II. FIG. I. *b. b.* The same is represented in the wood-cut *b. b.* The short diameter is in like manner the shortest diametrical line that can be stretched from one part of the brim of the pelvis to another. It is also called the sacro-pubic (sacro-pubien, Fr.) from its terminating points; and conjugate, possibly from its being the median line which here serves to connect together, after the manner of a yoke, the two parallel and equal spaces on either side of it. Its average measure is four inches and a quarter. See Atlas PL. II. FIG. I. *a. a.* or the same letters in the wood-cut. The two oblique diameters, so called no doubt because they cross the pelvis in oblique directions, are necessarily, in perfectly symmetrical pelves, of equal length. In pelves, however, of which the space on one side of the median line is less than that on the other, the oblique diameters must be unequal. Their common length when equal is five inches. Atlas PL. II. FIG. I. *d. d.*, wood-cut *d. d.* It should here, however, be observed, that though inferior in length to the transverse diameter, which in the dry subject measures five inches and a quarter, they are nevertheless examples of the longest diametrical lines which can be drawn across the brim of



a well-formed recent or living pelvis; some portion of the space within the brim, on either side of it, being in fact occupied by the *psoæ* muscles, and great blood-vessels and nerves which have to pass by the way of the pelvis to the lower extremities. Such are the best dimensions of the brim of a female pelvis.



**THE OUTLET.**—The space between the inferior boundaries, which form the outlet of the female pelvis, although quadrangular, is, in common with the brim, measured by lines which have been called diameters. The long and short diameters of the brim are reversed at the outlet. The long diameter of the outlet extends from the inferior termination of the symphysis of the pubes to the tip of the os sacrum, and measures five inches; see Atlas PL. II. FIG. II. *a. a.* or *a. a.* in the wood-cut; the presence of the os coccygis, which is pushed back during labour, not adding materially to its length. This line is also known by the name of antero-posterior diameter. The short or transverse diameter of the outlet extends from the tuberosity of the ischium of one side, to a corresponding point of the tuberosity of the opposite ischium on the other side. Inasmuch, however, as the tuberosities of the ischia present a considerable extent of space, it becomes necessary to indicate the points referred to with precision. They are determined by the locality of insertion of the posterior sacro-ischiatic ligaments to their respective tuberosities, inasmuch as these points determine the extreme boundaries of the space at the outlet of the pelvis in those directions. The average length of this diameter is four inches. Atlas PL. II. FIG. II. *b. b.* or the same letters in wood-cut.

The form of the outlet is much less regular than that of the brim of the pelvis. With the sacro-ischiatic ligaments attached, it presents the figure of an imperfect oval, or an oblong quadrangle, having its lateral angles considerably rounded off at the ischial tuberosities. When clothed with the soft structures which nature has attached to it, the outlet of the parturient

passage is eventually finished into a comparatively small aperture, which entirely loses its quadrangular character, and becomes, to a certain extent, capable of assuming any form adapted to its natural functions or required by any operations of art, which it may have to sustain.

OF THE DEPTH OF THE FEMALE PELVIS.—The female pelvis, as has been already observed, is distinguished from that of the male by being considerably shallower, or by having less depth; a provision obviously calculated to diminish the length of the parturient passage. It is, however, of very unequal depth at different parts. At the symphysis pubis, its depth is only an inch and a half; laterally, from the brim to the tuberosity of the ischium, it is about three inches and five-eighths; but posteriorly, it measures about four inches and a half without the os coccygis. Fourteen pelves, all of moderately good conformation, are placed before the author whilst he is drawing up this account. Of these, the respective depths ascertained by measuring the distance in straight lines from the base of each os sacrum to its apex, are in five of them—from  $3\frac{7}{8}$  to 4 inches, in one  $4\frac{1}{8}$ , in one  $4\frac{1}{4}$ , in two  $4\frac{1}{2}$ , and all in the rest  $4\frac{3}{4}$ , or upwards. Adding something for the concavity of the sacrum, the depth of the unyielding portion of the pelvis behind, will be found, on an average, to measure at least four inches and three-quarters. The caudal appendage to the sacrum, the os coccygis, recedes on the pressure of the child's head when applied to it, to an amount sufficient to warrant our withdrawing it almost altogether from the present calculation.

The unequal depths of different parts of the pelvis, is a fact deserving of very particular attention on the part of a young practitioner of midwifery. At the full period of gestation, the head of the child is found to bear in most cases immediately on the brim of the pelvis; which constitutes, as has been already seen, a part of the flooring of the superior or false pelvis. If on the accession of labour the orifice of the uterus should be found considerably dilated, an inexperienced medical attendant on passing up his finger in front and within the pelvis, immediately behind the symphysis pubis, and finding the presenting part of the child occupying a position within an inch and a half of the outlet, might too easily come to the conclusion that the delivery was at hand. An imprudent statement to that effect, might possibly injure his credit with his patient. It will be hereafter

seen, that the duration of a labour bears a direct proportion to the time which the presenting part of the child occupies, during its transit along the hollow of the sacrum and the remaining portion of the parturient passage posteriorly. This part of the subject will be better understood, when more particularly described hereafter under the head of Natural Labour.

OF THE ARCH OF THE PUBES.—It has been already stated, that the anterior portions of the ossa innominata, advance to meet each other at the median line in front. By so meeting they form the symphysis of the pubes. At the inferior extremity of the junction, they again diverge from each other in two descending columns; which after being sufficiently produced, gently incurvated interiorly, and otherwise adapted for their purpose, become the sides respectively of the arch of the pubes. The angle formed by the divergence of the two sides is the apex of the arch; where, in artificial masonry, would be situated its key-stone. The short diameter of the outlet of the pelvis, which is a line drawn from the tuberosity of one ischium to that of the other; that is, from the inferior extremity of one side of the arch to the same point correspondingly of the other, is at once the base of an equilateral triangle, the sides of the arch of a well-formed pelvis being equal, and a measure of the angle which it subtends. The inferior extremity, however, of the symphysis pubis is not an angle in the living subject: it being filled up by the sub-pubic ligament, which, as it is perfectly inelastic, has the effect of converting the angle into the apex of an actual arch; which being further filled up by the presence of the mass of structure which forms the neck of the bladder, and the urethra, a space is left at and on either side of its apex, sufficiently wide to admit of being completely filled up by the convex head even of a large child, during its transit through the pelvis. The depth of the pubic arch, in the dry subject, measured by a line drawn from its apex to the centre of its base, is two inches; whilst its curved lateral parietes are each three inches and a quarter. It will here easily occur to the reader, from what has been already said of the width of the female pelvis, that in the male subject, the arch of the pubis must be much narrower than it is in the female. It may be added, that its curvature both superiorly and laterally is also much less. So well does Nature, in this as in other parts of the body, suit her means to her ends.

OF THE INCLINATION OF THE PELVIS.—The existing position



of the pelvis in the human body is admirably adapted to its various purposes. Many of those purposes are common to both sexes, and we therefore find that in the relative position of the pelvis in the skeleton of each, there is no great variation. The position which it actually sustains, is that of a considerable deviation of its axis from those, either of the spine which it supports, or of the lower extremities by which it is supported. The weight of the body, whilst standing or walking, is necessarily supported in the line of its perpendicularity. Descending through the spine to the limit of its connexion with the pelvis, it there becomes as it were resolved into two principal portions, to be transmitted through the acetabula to the lower extremities. Were we to suppose the spinal line to be produced without this distribution of it into two portions, it would pass through an upper section of the superior false vertebra of the sacrum, find its way through the symphysis pubis, continue its course at equal distances from the extremities, and reach the horizon at right angles. Such is the axis of the body, in an erect position. But the axis of the pelvis is a straight line (*Atlas* PL. III. at *f. g.*) transmitted through the centre of its cavity, which would bisect the former line at unequal angles. The inferior angle thus formed, amounting to about thirty-five degrees, is a correct mathematical measure of the inclination of the pelvis, in a well-formed female subject.

OF THE AXIS OF THE PELVIS, CONSIDERED OBSTETRICALLY.—The straight line transmitted centrally through the space contained within the parietes of the pelvis, referred to in the preceding section, is not synonymous with the axis of the pelvis, as the term axis is ordinarily applied by teachers of midwifery. In strict propriety of language, an axis is a straight line; but in admeasurements of the female pelvis, the term has been used to express a curved line passing through the centre of the space within its curved tube, and equi-distantly situated from all opposite points of its parietes. The axis of the cavity of the pelvis, as thus understood, is accurately represented by the dotted line *d. c. e.* which is drawn centrally to the parietes of the pelvis in PL. III. of *Atlas*. This line produced superiorly, which it is in the figure at the part where it loses its dotted character, is intended to give an idea of the axis of the brim of the pelvis, and when produced in like manner inferiorly, that of the axis of the outlet. Some authors have chosen to divide the axis of the

pelvis into three straight lines: viz. one to represent the axis of its brim, another that of its cavity, and a third that of its outlet. With the conversion of the middle axis into a curved line, which is to be identified with a similar curved line or axis of the child's head during its passage through the pelvis, this understanding of the matter is sufficiently practical. When the child has to enter into the pelvis, whether propelled into it by the powers of nature, or conducted into it by any assistance of art, it should be made to engage at the superior aperture in correspondence with the axis of the brim. When again it has to traverse the intermediate cavity between the brim and the outlet, it advances, or is to be assisted in its progress in strict correspondence with the curved line central to all opposite points of the parietes of the cavity as already described; and when it shall have descended to the flooring of the pelvis, it is then propelled, or when necessary, is to be withdrawn, in a line with the axis of the outlet.

Such are the principal circumstances in the obstetric history of a pelvis of standard dimensions. In order however to ascertain the actual relations of the pelvis, and especially to establish, in doubtful cases, the fact of sufficient dimensions for the purposes of midwifery, and in others the amount and character of deviations from such dimensions, certain instruments for taking measures of the pelvis, and therefore called pelvimeters, have been proposed and recommended by ingenious men.

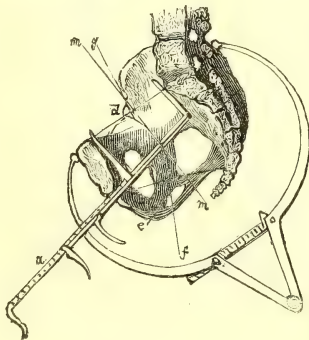
OF PELVIMETERS.—Dr. Aitken of Edinburgh suggested the use of a graduated catheter for this purpose. See Aitken's Principles of Puerperal Medicine. The point of the catheter is directed to be passed across the interior of the pelvis, from the apex of the arch of the pubis to the promontory of the sacrum. Allowance being made for the obliquity of this line, and for the thickness of the pelvis at the symphysis of the pubes, viz. about half an inch; it is presumed that the scale on the catheter would pretty correctly indicate the length of the conjugate diameter of the brim of the pelvis. This suggestion, however simple and practical it may appear on a first view, is found in its application to disappoint the expectation of the practitioner. The medical attendant would in many cases find it exceedingly difficult to fix the extremity of his catheter precisely upon the most projecting part of the sacrum; and in others impossible to keep it there until he could accurately ascertain the amount of



space occupied by it. The extremity of the instrument is rounded and smooth, and would therefore be liable at every movement however trifling, either of the patient or of the practitioner's hand, to be displaced.

An instrument of the same description, but made of wood, is Stein's Beckenmesser. See Stein's *Practische Anleitung zur Geburtshilfe*, PL. II. FIG. IV. It differs from the graduated probe of Aitken only in having a kind of slide upon it; which, when the blunt extremity is passed on to the projection of the sacrum, is moved into contact with the symphysis pubis. The instrument is then withdrawn and examined; and the distance between the promontory of the sacrum and the symphysis pubis is formed in inches and parts of inches.—Hull's *Observations*, etc., p. 372.

Similar in principle, but less simple in its construction, and less practical in its application, is the pelvimeter of M. Coutouly. This consists in a graduated rule, abutted at its extremity by a short staff, which is produced from it at, or nearly at, a right angle. Parallel to this abutment is another staff of similar form and length, which being attached to, is made to move upwards and downwards with the graduated part of the rule, and thus to become a measure of the scale marked upon it. M. Coutouly proposed to carry the abutted extremity of his instrument into contact with the promontory of the sacrum, and presumed that, by bringing the sliding and parallel shaft downwards and forwards into contact with the symphysis pubis interiorly, the graduated rule would precisely indicate the distance between the promontory of the sacrum and the symphysis of the pubes. The structure and mode of application of this instrument will be instantly understood upon looking at the drawing of it given at *a* in the wood-cut or in PL. III. of the Atlas. In the dry pelvis, as represented in the plate, M. Cou-



touly's pelvimeter would seem calculated to answer its purpose very sufficiently. But, in actual practice, it is not only in some degree liable to the objection made to the graduated catheter of Dr. Aitken, but also to that of perfect inaptitude for measuring a space so much occupied by soft structures as the cavity of the pelvis is in the living subject. Moreover, if the child's head be supposed in any degree to have engaged in the pelvic cavity, it is obvious that this instrument must become less useful or applicable in directly the same proportion. During labour, therefore, it can answer but little purpose; whilst in young subjects in the absence of labour, and pregnant for the first time, it would seem scarcely possible to use it at all.

Another instrument proposed for ascertaining the dimensions of the conjugate diameter of the pelvis, is the callipers of M. Baudelocque. SEE PL. III. FIG. *b*. of the Atlas, or the same letter in the wood-cut. This instrument is applied to the pelvis externally. One extremity of its curved shanks is applied to the angle of the spine at the junction of the lowest lumbar vertebra with the base of the sacrum, and the other to the mons veneris. The intermediate distance thus obtained between the lenticular extremities of the instrument, would give the dimensions of the conjugate diameter, together with the thickness of the symphysis pubis and that of the sacrum at its base, so far as the point of the spinous process of the lowest lumbar vertebra, as also the space occupied by the cellular structure and integuments covering both parts. Deducting then from the whole intermediate distance between the knobs of the instrument a measure equal to what may be presumed to be occupied by the bones, cellular tissues, and the integuments of the pelvis, both before and behind, there would, presumably, be left the actual measure of the conjugate diameter. M. Baudelocque, who first proposed the application of the callipers for measuring the conjugate diameter of the brim, makes an allowance of three inches for the space occupied by the parietes of the pelvis as just stated, in cases of women of spare habits, and a line or two more for such as are more than usually lusty. "According to the data thus given," observes M. Baudelocque, *System of Midwifery*, translated by Heath, vol. i. p. 93, "the knowledge of this diameter is easily obtained. It is four inches when the external thickness of the pelvis measures seven; but three, when the latter only measures six, and but two when it does not exceed five, etc. I suppose

the woman to be thin as most of those are who have been rickety." M. Baudelocque states that these results were so uniform that he never found the difference of a line in about thirty-five examples of pelves distorted in all manners of ways and in all possible degrees, which were made by him the subjects of examination and admeasurement. Such, indeed, is the confident report of M. Baudelocque. In the practice, however, of other obstetricians, its too credulous adoption has been followed by lamentable consequences, and amongst the cases most painfully illustrative of this statement, which at present occur to the recollection of the author, is one published in Leroux' *Journal de Médecine*, vol. xxxvii. p. 273, which the reader will find transcribed in the 4th Edition of this work. Could we indeed, in all cases, depend upon the principle on which M. Baudelocque has founded his admeasurements, his instrument would possess a certain amount of value. But the truth is, that the thickness of the bones of the pelvis at its brim, both anteriorly and behind, is subject to much greater variation than the statements of that gentleman, though apparently warranted by his facts, might lead us to suppose. The author made the following admeasurements in the presence, and with the assistance of his friend Mr. Robert Smith Owen, of Cirencester, a student in the Medical School of University College. He first measured the thickness of the base of the sacrum, carrying the point of his measuring instrument over the body of the superior false vertebra, to the level of a line or plane taken from the terminating point of the spinous process of the lowest lumbar vertebra to that of the corresponding spinous ridge of the upper part of the sacrum. In seventeen pelves, well formed and distorted, taken indifferently, the thickness of the base of the sacrum from the edge of the promontory to the spinous ridge just described, without the addition of cellular structure or integument, was found to measure as follows:—In one it measured 3 inches; in another  $2\frac{7}{8}$ ; in three  $2\frac{5}{8}$ ; in one  $2\frac{1\frac{3}{8}}{8}$ ; in three  $2\frac{3}{4}$ ; in three  $2\frac{3}{8}$ ; in three  $2\frac{1}{2}$ ; in one  $2\frac{1}{4}$ ; and in one only 2 inches; making between the extremes the difference of an entire inch. Again, of twelve pelves, the thickness of the symphysis pubis, without the integuments, was as follows: in one it was  $\frac{7}{8}$  of an inch; in three  $\frac{5}{8}$ , and in eight half an inch.

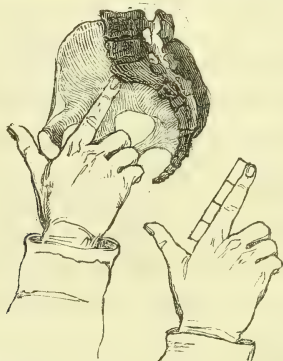
It is not pretended that the length of any other diameters of the pelvis than the conjugate, whether of brim or outlet, can be



ascertained by means of M. Baudelocque's callipers, nor has it been proposed by their use to discover the fact that a pelvis may be much more capacious on one side than on the other; a fact, nevertheless, perfectly well known to practical men, and one at the same time of great practical importance.

The late estimable Dr. John Sims had a patient whose pelvis was of this construction. He attended her in all her confinements. Her labours were difficult and protracted. Some of her children were born alive; whilst several others were unavoidably lost by the operation of cephalotomy. The Doctor observed that in all the latter cases, and only in them, the foetal heads presented on the smaller side of the pelvis; and on two occasions he communicated his anticipations to the husband some hours before he felt himself authorized to have recourse to the ultimate expedient of his art. Dr. Sims considered the long forceps of Smellie an exceedingly dangerous instrument; nor was he able in any of the above cases to change the situation of the child's head from the smaller to the more capacious side of the pelvis, either by his hand or by his vectis, in the use of both of which he was remarkably expert.

In this country artificial pelvimeters have been very seldom used, and, perhaps, never exclusively depended upon; whilst, indeed, there is not one diameter, nor any portion of the cavity of the pelvis, which cannot be much more accurately ascertained by the natural pelvimeter, the practitioner's hand, than by any artificial means whatever. The length of the conjugate diameter may, at all events, be most accurately determined in this way. SEE PL. IV. FIG. I, II, of the Atlas—the same is endeavoured to be



shown in the accompanying illustration. The patient being placed on her left side, the medical attendant's fore-finger is to



be carried up to the promontory of the sacrum. Whilst the point is made to rest on the sacral projection, some inferior portion of it will cross the arch of the pubis, the apex of which it may be made more or less distinctly to feel. This part of the finger should be accurately marked with the nail of the index finger of the practitioner's other hand. The intermediate distance between the part of the finger so indented and its point resting on the promontory of the sacrum, will of course be the measure of a line drawn from the promontory of the sacrum to the apex of the arch, the thickness of the symphysis pubis inclusive. Making an allowance for this thickness, and for the greater length of the line thus obtained, by reason of its greater inclination, than of the conjugate diameter, the length of the latter line, the conjugate diameter of the brim of the pelvis is determined with considerable accuracy. Should the practitioner's index finger prove too short to reach the promontory of the sacrum, presuming on its being of the ordinary length, and on its being passed up in a proper direction, it would then be a matter of generally safe inference that the pelvis was of sufficient capacity in the direction of the conjugate diameter.

Inasmuch, however, as a greater degree of precision might be desirable in some doubtful cases, it would be quite easy for the medical attendant to obtain it by carrying up his index and long finger together, so that the latter might be placed upon the promontory of the sacrum. He would then have to indent the nearer part of his index finger as in the former case. The distance between the part so indented of the index and the point of the long finger resting upon the sacrum would give the length of the conjugate diameter, together with the allowance of half an inch for the greater length of the line actually measured, and the thickness of the symphysis pubis. The distance so obtained would be easily determined by applying a common rule to it.

But the conjugate diameter may by possibility be of sufficient length, and yet the space on either side of it might be too contracted to admit the head of a well-grown child to enter into the pelvic cavity. The fact of this malformation may also be ascertained with tolerable accuracy by the hand. For this purpose the whole of the hand is to be introduced into the vagina and carried up edgewise, *i. e.*, with the index finger in front, and the

little and ring fingers behind, to the lateral portions of the pelvic cavity ; so that the points of the fingers shall rather more than clear the brim. Should there be found sufficient room on either side of the diametrical line for the hand so introduced to maintain the parallelism of the fingers, without being forced to ride over each other, then it would be a matter of conclusion that with sufficient space in the middle, added to the ordinary space on the other side, there would be found ample room for the descent of the child's head into the general cavity. The practitioner then would have to pass his hand along the other side of the pelvis, and subject its dimensions to the same test. If, indeed, the hand were carried up along and nearly in contact with the lateral parietes of the pelvis, and room were found there even for THREE FINGERS to lie together in moderate parallelism, the conjugate diameter being at the same time of sufficient length, it would be competent for the medical attendant as a general rule, to infer favourably of the dimensions of such a pelvis.

**DIMENSIONS OF THE OUTLET OF THE PELVIS.**—The diameters of the outlet of the pelvis admit also of easy admeasurement without a pelvimeter. The mobility of the coccyx indicates the precise locality of its junction with the apex of the sacrum, from which part to the pubic arch there could be no difficulty in ascertaining the distance with great precision. With respect to the transverse diameter of the outlet, it is, perhaps, not quite so easily ascertained as the other, in consequence of the thickish cushion of cellular substance and integuments by which its extremities are covered. In most cases, however, the tuberosities of the ischia may be sufficiently accurately felt to enable the practitioner to form his judgment of the localities and intermediate distance of the points of insertion of the ischiatic ligaments ; which points the reader is now aware are the extreme boundaries of the transverse diameter of the inferior aperture. But this diameter may be accurately enough ascertained for practical purposes by merely introducing the hand into the pelvis, and placing the thickest and broadest part of it transversely across the vulva so as to occupy the line of the short diameter. The breadth of an average-sized hand across the metacarpal joints is very nearly three inches and a half. A pelvis, therefore, sufficiently large to permit the hand to occupy easily, or at least without sustaining any serious pressure from the lateral boundaries of the outlet,

the position just described, would be sufficiently ample for the safe passage through it of a well-grown foetal head at the full period of gestation.

OF EXCESSIVE CAPACITY OF THE PELVIS.—The inconveniences likely to be sustained from excessive capacity of the pelvis, are morbid displacements of the organs contained within it; which occur principally during gestation and parturition, or as consequences of labours too suddenly consummated.

1. When the pelvis is too large, the gravid uterus, during the earlier months of gestation, remains within its cavity a longer time than it otherwise would do, before it becomes competent to ascend into the cavity of the abdomen, in the progress of its development. But being increasingly larger and heavier than in the absence of pregnancy, it naturally sinks towards the flooring of the cavity, where it is apt to produce irritation both of the bladder and of the rectum, which are there situated.

2. Between the tenth and fifteenth week of gestation, a pelvis of the conformation here supposed might furnish opportunity to the uterus to become the subject of the malposition called *RETROVERSION*; and excessive capacity of the pelvis has indeed been mentioned by practical writers as a predisponent cause of the malposition in question.

3. In some cases the pelvis has been so large, as to allow at an advanced period of gestation the uterus with its contents to enter deeply into its cavity before the accession of labour; so as to occasion exquisite distress to the patient, much interference with the functions of the rectum and the bladder, great and painful swellings of the external genitals, and severe constitutional symptoms, as results of these local inconveniences.

4. But not only has the gravid uterus descended deeply into the interior of the pelvis when its cavity has thus been of excessive magnitude; but it has also, at an advanced period of gestation, and in the absence of labour, MADE ITS ENTIRE ESCAPE OUT OF THE PELVIC CAVITY, so as to have presented itself bodily between the thighs of the patient.

5. In some other cases of unusually large pelves, the uterus has descended deeply into the cavity of the pelvis, its orifice dilating rapidly, and the parts at the outlet becoming also suddenly relaxed and developed, the child has escaped out of the parturient passage so quickly, as scarcely to have excited the consciousness



of the mother. Cases of poor women being delivered in hackney-coaches, on their way to the Lying-in-Hospitals of this metropolis, are not unfrequent. One case occurs to the recollection of the author, of a child being dropped on the foot-path of Westminster-bridge, by a poor woman who was hurrying on foot to the Westminster Lying-in-Hospital. She was taken up by a drayman, who carried her and her child, the placenta unseparated, to the hospital. No fatal consequence succeeded to the accident. In another case, a child of ample size escaped suddenly into a chamber utensil, upon which the mother had just seated herself to respond to what she considered a simple call of nature. In rising quickly, and alarmed at an incident which she little expected, the umbilical cord was put violently upon the stretch, which by effecting a partial separation of the placenta became the cause of a profuse hæmorrhage. The medical attendant was in waiting in an adjoining room; and by instantly withdrawing the placenta, prevented further mischief. When the placenta has been firmly adherent, the uterus not immediately contracting, the accident now described HAS OCCASIONED TOTAL INVERSION OF THAT ORGAN.

6. Dr. Haighton, in his excellent lectures on midwifery, used to quote a case of sudden and unexpected delivery, which was made the subject of a prosecution for child-murder, see the 4th edition of this work, vol. i, p. 24.

OF DEFICIENT CAPACITY OF THE PELVIS.—A pelvis may be too small, absolutely or relatively. The pelvis of a very small woman may be too small for the purposes of parturition under any circumstances; or it may be too small only in the event of its subject becoming connected by marriage to a gigantic husband. A pelvis may be too small, and yet its several parts may be duly proportional among themselves. We, moreover, occasionally meet with examples of defective capacity of the pelvis when other parts of the skeleton are of standard magnitude; which may arise from original conformation, or be the consequence of a diseased condition of the osseous system in early life. In the latter case the pelvis would not only be small, but probably also in some degree deformed. Any pelvis of dimensions inferior to those of a standard pelvis should be called a small pelvis. Pelves of somewhat less dimensions than those of a standard pelvis may, however, occasionally admit of children being born alive at the full period of gestation. For example, a child of average size at that



period might be born living, provided the conjugate diameter of the brim of the mother's pelvis was three inches and three quarters, and the head presented in the best possible position. But if it amounted to no more than three inches, A WELL-GROWN CHILD AT THE FULL PERIOD could not be expected to pass without an operation to reduce the bulk of its head. Such a pelvis might however be large enough to admit of the birth of a living child at a period of gestation something short of the full period, but yet sufficiently advanced to warrant the probability of its being able to sustain an independent life subsequently to its birth. In cases of this description, the operation for the induction of premature labour is especially indicated. That operation, however, so creditable to the art of midwifery in our times, requires, in order to its being performed in proper circumstances, a perfect knowledge on the part of the medical attendant, of the dimensions of his patient's pelvis. It may, indeed, be observed that pelves of only very limited deficiency of capacity, admit, at the full period of gestation, of the performance of operations compatible with the preservation of the child's life.

For an example of one of the smallest pelves without any considerable distortion that are recorded, see Hull's Observations on Simmons' Detection, Manchester, 1794, p. 180. "Of the latter pelvis, which belonged to a dwarf only three feet high, the antero-posterior diameter of the superior aperture measured two inches, the transverse four and a quarter: the right and left oblique diameters four inches each. The distance from the extremity of the right and left os pubis to the sacro-iliac symphysis measures three inches and a half. The antero-posterior diameter of the inferior aperture measures three inches and three quarters; the transverse, three and a quarter. The os sacrum is three inches and a quarter broad, and two inches and a half high. The angle formed by the rami of the ossa pubis is sixty-seven degrees and a half."

OF THE USES OF THE PELVIS.—Little need be said on this part of our subject. The pelvis is the medium of connexion between the trunk of the body and the lower extremities, and furnishes points of insertion and leverage to all the muscles which act intermediately between these parts. It affords passage and security to the blood-vessels, lymphatics, and nerves, which supply the lower extremities; forms the cavity in which are lodged the internal organs of generation and their appendages during

the unimpregnated state of the uterus, together with the rectum and bladder ; and furnishes surfaces of attachment to the external genitals, to numerous ligaments by which its different parts are connected together, to the glutei and other important muscles, and in short to all the varieties of organs or other tissues which nature has deemed essential to the construction and finishing of this part of the human body.

OF DISEASED CONFORMATIONS OF THE PELVIS.—The principal causes of distortions of the pelvis are injuries, such as fractures ; and diseased actions, such as inflammations, exostosis, caries and morbid softness of its bones.

From the peculiar position of the pelvis in the human body it might be justly inferred, that it could rarely be exposed to the liability of being fractured. In point of fact few such examples are recorded. A case of this description, however, once occurred in the author's practice, and is reported in the first edition of this work, pp. 26, 27. The excessive distortion of the pelvis of Jane Foster, of Blackrod, on whom Mr. Barlow successfully performed the operation of gastrotomy, was the effect of fractures of both ossa innominata, occasioned by a loaded cart passing over her pelvis. Medical Records and Researches, p. 154. Professor Sandifort, in his *Museum Anatomicum*, vol. ii. PL. XLV. FIG. V, VI, VII, has given very interesting engravings of pelves which had been distorted by fractures of the sacrum. In some cases the pieces are represented as having subsequently united at angles very little short of right angles.

Dislocations of one or both of the thigh-bones have been quoted by obstetric pathologists, as causes of distortion of the pelvis. Dr. Hull, in his second letter to Mr. Simmons, p. 183, observes that, "the head of the os femoris, when not reduced, pressing necessarily on a different part of the pelvis, has been found to induce a very material change in the form of its apertures. This change is different, according to the situation occupied by the dislocated extremity. When the ossa femorum are dislocated upwards and backwards, by pressing upon the dorsum of each os ilium, they may shorten the transverse diameter of the superior aperture, and elongate the transverse diameter of the inferior aperture, by increasing the angle at which the rami of the ossa pubis recede from each other. When the femur is dislocated downwards, the pressure being made at the inferior part of the pelvis, the deformity is of the contrary kind, the

lower part becoming contracted and the upper part enlarged. The dislocation of the ossa femorum may be expected to produce a greater effect in young subjects, as the bones of the pelvis will then yield more to the superincumbent pressure than in the old ones."

Another cause calculated to occasion a diminution of space within the pelvis is EXOSTOSIS, or a morbid growth of one or more of its constituent bones. When such growth is determined into the interior of the cavity, it is obvious that its dimensions must be affected in direct proportion to the length and general bulk of the projecting part. Sandifort, PL. XLV. FIG. III. But in cases of inflammation of bones, it not unfrequently happens that their forms are greatly vitiated, independent of any important addition to their bulk by exostosis. There is at present, in the Anatomical Museum of University College, a pelvis, of which the cavity is considerably diminished, and one side more especially, distorted, without being accompanied by any adventitious growth of bone into its interior.

Destruction of a considerable portion of one or more of its constituent bones, by whatever disease or other cause effected, may be productive of contraction of the pelvic cavity. The devitalised portion of a bone being removed by absorption or abscess, the remaining living surfaces, in the event of the patient's recovery, will very generally approximate and unite. But this could not be expected to take place, without producing a diminution of capacity of the part proportional to the loss of substance sustained.

There are yet two other remarkable affections of bones, which are more productive of distortions of the pelvis than all other diseases of the osseous system put together: viz. the rickets of infancy and malacosteon of more advanced age. Distortions in both these cases appear to be in a great measure the effect of a certain diathesis in the habit, which occasions a softness of the bones. Bone is principally composed of animal gluten and phosphate of lime. If these enter into its composition, in their usual and proper proportions, the bone will be firm and strong. If the gluten be defective, the bone will become brittle. If, on the contrary, there be want of phosphate of lime in due quantity, the bone will become soft. If the whole of the skeleton be in this state, it will become subject to diverse changes of form from the action of pressure on it; and the pelvis being especially liable



to pressure, from its peculiar relation to the lower extremities and to the superincumbent trunk, it seldom escapes the influence of this cause.

**DISTORTION FROM RICKETS.**—Deformity from rickets may be either partial or general: i. e. it may be of one part of the skeleton or of many; as it also may be of one part of the pelvis or of the whole of it. The pelvis of an adult subject, rendered deficient in capacity by the rickets of infancy, is most frequently defective in the dimensions of its brim from behind forwards; those from side to side not usually sustaining much diminution. Many pelves thus affected present on first view the character of a moderately good conformation; which, however, upon closer examination or accurate admeasurement, are found too small to admit of a passage through them of a well-grown child at the full period of gestation. In other cases, the capacity of the brim has been so seriously affected by rachitis, as not to admit a circle of an inch in diameter to be described within any part of its parietes. The ordinary variety of distortion of the superior aperture, when occasioned by this disease, consists in simple approximation of its anterior and posterior parietes. This approximation is generally greater in the middle than on either side, in consequence of the greater bearing of the superincumbent trunk of the body at that part, added to the already-existing projection of the sacral promontory. This rule, however, is not without exceptions, as may be inferred from an examination of the several sketches of distorted superior apertures of pelves, given in PL. VI. FIG. I, II, III, IV of the Atlas. It is an observation of Levret, that when a pelvis is confined at the brim, it is expanded at the outlet, and the contrary. This statement may be considered as generally true. But there are many exceptions to it: inasmuch as there are cases in which we observe great narrowness, both above and below. The contraction of the superior aperture may be readily accounted for, from the action of two concurring forces which are applied to it, viz. the weight of the superincumbent body on the superior part of the sacrum, by which that part is necessarily propelled downwards and forwards; and the resistance made to that weight by the heads of the thigh-bones at the acetabular cavities, by which the anterior portions of the ossa innominata are borne upwards and inwards. It will be easily conceived how the action of contraction at the brim will generally tend to produce expansion of the outlet.



When this does not take place, or when the opposite state of the parts is presented, we may presume that some counter-acting cause or causes must have been in operation; such as the daily exposure of the sacrum and of the inferior portions of the ossa innominata to pressure from hard beds, hard floors, perforated chairs, etc. during the presence of the rachitic disposition.

**DISTORTION OF THE PELVIS FROM MOLLITIES OSSIIUM.**—A softened state of the bones, as we have already seen, is a condition of the osseous system, common both to rickets and to malacosteon. Some authors have, indeed, considered the rickets of infancy and childhood, and the malacosteon of adult age, as one and the same disease; and only differing in the accident of their occurring at different periods of life. There are, however, circumstances which would appear to tend to involve this theory in some doubt. It is well known, that the rachitic diathesis is in all cases the result of extreme feebleness or other depraved condition of the chylopoietic functions, induced by certain recognised causes to which the subjects of the malady are especially exposed during the first twelve or eighteen months of their existence: whereas there are reasons for believing that malacosteon more frequently arises from causes of an accidental nature, sometimes as results of severe labours, and in other cases as consequences of acute diseases affecting particular parts of the body, not essentially nor proximately depending on any particular states of the digestive organs. Moreover, malacosteon is both a painful and a fatal malady. But children, when the subjects of rickets, make no complaints of pain of their distorted limbs, and are seen to move about, and otherwise to exercise themselves, without exhibiting any signs of inconvenience; while it is probable that death is never exclusively the effect of the softened state of their bones. We may again infer, from the perfect constitutional recovery of the greater number of the subjects of rickets, as well as from the occasional opportunities we have of post-mortem examinations, that the bones which become distorted from this cause, are scarcely ever so much injured or changed as to their constituent materials, OR ALMOST PERFECTLY DESTROYED, as they are in some cases, by malacosteon. In the interesting case of JAMES STEPHENSON, as related by Mr. Henry Thomson, Surgeon to the London Hospital, we are informed, that he found the original bony part of the tibia, DURING THE LIFE OF THE SUBJECT, of about

the consistence and thickness of the rind of cheese ; whilst a dusky-red, or liver-coloured fleshy-looking substance, occupied the whole of its interior ; “ which was devoid of sensibility, and from which the osseous covering had been removed, without the least hæmorrhage.” It presented the appearance of an unorganized mass, similar “ to the coagulum which may be formed upon a stick or feather, by stirring fresh-drawn blood in a basin.” After death, all the cylindrical bones were found in a similar state ; whilst, indeed, no part of the skeleton had escaped the extraordinary influence of the disease. *Medical Observations and Enquiries*, vol. v. p. 259. The changes in the osseous system of the celebrated Madame Soupiot, as communicated by Dr. Ambrose Hosty of the Faculty of Paris, in the *Transactions of the Royal Society of London*, vol. xlviii. part i. p. 30, are still more remarkable. “ The operation,” THE POST-MORTEM EXAMINATION, “ was begun on the left tibia. It was wonderfully altered ; more or less soft in all its length. In some points it was entirely dissolved, and its sides not thicker than the gristle of the ear. The spongy substance of its extremities supple, yielding to the least pressure. The reticular matter was quite dissolved. The peroné was entirely dissolved in the middle, and only slight marks of its extremities remained. Instead of marrow, we found in all the bones a red thick matter, like coagulated blood mixed with grease.”—“ The femur was rather a fleshy body than a bone. Its cavity was filled with a reddish suet instead of marrow, which, accumulated in different points, bulged out the fleshy sides !”

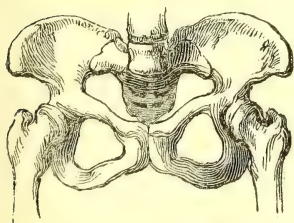
The following description, as far as the author knows, applies only to the latter disease. “ I then also observed, that the napkins upon which she spit grew black in the washing, and stained, as if from mercurial ointment ; though I could not suspect, as I could not learn, that she had ever used mercury. In a month after, I observed the same thing on all the linen that touched her skin. Her linen stained all the washing, like linen impregnated with mercurial ointment. These spots appeared on the linen like a mixture of cretaceous matter and grease.” Case of Madame Soupiot.

Mollities ossium, it may be further observed, is, in many cases, an exclusive affection of the bones of the pelvis and of the inferior portions of the spinal column. A lady in the neighbourhood of the author's residence had been the subject of severe pains of

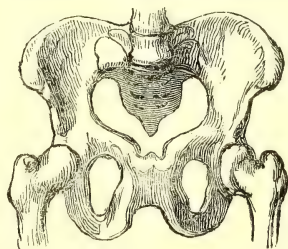
the back and loins for some months antecedently to her last pregnancy. These pains, as is usual in such cases, were referred to and treated for a rheumatic affection of the muscles of her loins. During her gestation the disorder became greatly aggravated, and she became totally helpless and bed-ridden. She eventually died. Upon examination after death, the pelvis presented the characteristic deformity of malacosteon; whilst, also, several of the lumbar vertebræ, which were imbedded in grume and pus, from ulceration and destruction of the immediately contiguous soft parts, were in a state of caries. No other parts of the skeleton of this subject than the pelvis had suffered distortion, nor could any of her cylindrical bones be discovered to have been in any degree affected by the disease. See 4to edition, p. 30.

The characteristic deformities of the pelvis, respectively produced by the rickets of infancy and the malacosteon of adult age, are well illustrated by Dr. Hull, in his second letter to Mr. Simmons, p. 193. "The pelves," observes that ingenious author, "of which I have given figures, are excellent examples of the diversity of deformity, induced in the infantile period of life by rachitis, and in the adult state by malacosteon. In the distortion occasioned by the former disease, the symphysis of the pubis and the os sacrum are approximated; but the acetabula remain as distant from each other as in the natural state; or even become more distant, in consequence of the bones of the pubes becoming straighter. In the latter disease, the acetabula are the parts of the pelvis which principally yield, and by their approach to each other and to the sacrum, give to the superior aperture the form of a triangle, with its three sides convex inwardly, the bodies of the ossa pubes being rendered more or less nearly

Deformity from rickets.



Deformity from mollities ossium.



parallel to each other." In PL. VI. of the Atlas, these respective forms of distortion are represented; the same facts are intended

to be shown in the accompanying woodcuts, the one indicating the deformity resulting from rickets, and the other that from mollities ossium. For Dr. Hull's attempted explanation of the fact assumed, and the author's remarks upon it, see the 4to edition of the present work, vol. i. pp. 31, 32.

The influence of the several varieties as well as degrees of distortions of the pelvis on the process of parturition, will be treated of under the more immediately obstetric department of the present work.



## CHAPTER II.

THE external genitals of the female are the mons veneris, the labia pudendi majora, the clitoris, with its prepuce produced to form the labia minora or nymphæ, the external orifice of the urethra, the frænum, the hymen and carunculæ myrtiformes.

Names are also given to certain surfaces and spaces which result from the distribution of some of the above structures; such as the anterior and posterior commissure, the vestibulum, the fourchette, and the fossa navicularis.

OF THE MONS VENERIS; MONTICULUS VENERIS; FR. PENIL; EMINENCE SUS-PUBIENNE.—These designations have been given to the prominent part of the human female, which is situated between each groin laterally, and the hypogastrium and sexual fissure superiorly and inferiorly. The extent and fulness of this prominence vary with the age, size, and form of pelvis, of different subjects. It principally consists of common integument, which at this part is exceedingly thick and strong; and of dense cellular tissue, which is usually charged with an abundant quantity of fat. Added to these, are numerous glands for the secretion of the down and hair with which at successive periods of life these surfaces are covered. The latter form of the pilous covering is a distinction which is acquired at the age of puberty; its colour, strength, and quantity, being subject to great variety in different individuals. The diseases of the mons veneris are not numerous.

OF THE MORBUS PEDICULOSUS OF THE MONS VENERIS.—The pubes are the seat of a teasing pruritus, from the presence and operations of a pedicular variety of insects, which fasten upon and insinuate themselves into the cuticular structure of the part. It is said that the worst forms of the disease are common to the pubes, the axillæ, and the eyebrows. Portal, Anatomie Médicale, tom. iv. The proper treatment consists in an application to the part affected of an ointment, made with red or white precipitate and common cerate or pomatum, in the proportion of a drachm of the former to an ounce of the latter, alternated with daily ablutions with soap and warm water.

There is no truth in the supposition, a notion however which rather generally prevails, that the morbus pediculosus can only be acquired by sexual intercourse, or personal approximation in some other way, to another individual previously affected with it.

DIMINUTION IN THE QUANTITY OF THE HAIRY COVERING OF THIS PART, can scarcely be mentioned as one of its diseases: whilst, however, it may not be improperly noticed as a fact, which occurs in a very remarkable degree, in many cases, at and after the period of cessation of the menses. This fact is well known to anatomists and nurses of hospitals.

In some rare instances the colour of the hair has been from infancy white or grey, similar to that of the hair of the head in old age. Authors have connected this peculiarity in the female with natural and incurable sterility. It may, however, be observed, that such an inference can scarcely be supposed to be founded on a sufficient number of observations. *Ephemerides Germ. dec. ii. an. vi. obs. 20. 1688.*

It has been said that the Turks, in common with some other nations, accustom themselves to the use of depilatories to remove the hair, which nature has intended for a covering and protection, as well as for a means of concealment of the pudendum. These depilatories consist of powdered quicklime, orpiment, or nitrous acid, combined with the various ingredients which usually go into the composition of pomades.

A case of severe pruritus of the genitals occurred in the author's practice about two years ago, in the instance of a young married lady, who was the mother of one child. An examination led to the discovery that the entire pudendum, together with its neighbouring surfaces even to distant portions of the common integument, the posterior perinæum, the whole of the hypogastrium, and even parts of the abdomen intermediate between the umbilicus and scrobiculus cordis inclusive, were covered with a most extraordinary quantity of hair. The subject of this history having been more or less harassed with the pruritus, from which she was then suffering, since the commencement of her fourteenth year, when she menstruated for the first time; it was conjectured that this superabundance of the hairy covering of the pubes might, by promoting the evolution and retention of an undue phlogosis in the uterine system, act as an indirect cause of the distressing symptom. This presumption was acted upon, and the patient was furnished with an unguent consisting of two parts of

quick-lime, and six of strongly-scented pomatum, accompanied with directions to apply it by friction to the mons veneris and contiguous integumental surfaces twice a day. These operations were more than once obliged to be suspended in consequence of the irritation, amounting to a slight fretting and inflammation of the cutis, which they occasioned. In about two months, a very large proportion of the hairy covering was removed; and as the process of depilation advanced, the author had the pleasure of observing, that the patient experienced a sensible abatement of her pruritus, and about the middle of the third month, subsequently to the commencement of the practice, the symptom entirely ceased. The author deems it his duty to add, that this treatment was throughout accompanied by the exhibition of alterative and aperient medicines, and of lotions and injections of various kinds to the vulva, vagina, and uterus. The subject of the case has never experienced a return of her complaint.

It is well known that certain diseases of the skin act as depilatories. Has sexual libertinism the same effect? Riolanus mentions the case of a woman of this description, whose person he had the opportunity of seeing after death, and whose pubes were totally destitute of the hairy covering.

Travellers report to us, that there are entire tribes of native American Indians whose pubes are as little covered with hair as any other parts of their bodies. The Indian chiefs, native Brazilians, who were exhibited some years ago in Bond Street, by M. Chabert, afterwards the CELEBRATED FIRE-KING, were represented by their exhibitor as examples of a total absence of hair on or in the neighbourhood of the mons veneris. The author, who attended professionally the only child of the exhibited family, had the opportunity of satisfying himself that, in the case of the gentleman chief, M. Chabert's representation was quite correct. Buffon, Hist. Naturelle, vol. vii.

Cases have been recorded of extremely morbid growth as to length, without being accompanied by any other disease, of the hairy covering of the mons veneris and pudenda. Ephemerid. Germ. dec. ii. an. vi. 1688.

But another very remarkable disorder of the same structure, or rather of the glands, whose office it is to secrete the hair, is the PLICA, to which the inhabitants of some parts of Poland and Lithuania are especially subject. The pudenda, in common with the head and with all other parts of the body which are usually



covered with hair, is liable to the invasion of that odious and loathsome disease. When it has affected the region of the pubes, the hair proper to the part, besides being agglutinated by the morbidly viscid and horribly offensive secretions of its glands, has, in some cases, grown so enormously in length as to have reached the ground. To avoid the inconvenience and unsightliness which would thence result, its subjects are represented as being obliged to tie it up and to coil it about their thighs. Would not abscision be a better practice? See a letter from Dr. John Patterson Haine to the editors of the *German Ephemerides*, an. iii. p. 401. 1672.

REMARKABLE CONFORMATION OF THE PUBES OF SOME WOMEN IN EGYPT.—It has been reported by Sonini, in his *Travels in Upper and Lower Egypt*, that the native women of the country, the Copts, are subjects of the growth of a double column of loose, flabby, fleshy substance from the pubes, of considerable length and thickness, which, from hanging pendulous from its parent tract of tissue, of which it is by some considered to be solely a production, has the effect of overshadowing and concealing the greater part of the *rima pudendi*. During early infancy it is represented as being of small dimensions. In girls of eight years of age it measures about an inch; but in a woman of between four and five and twenty, it exceeded four inches in length. Was not this the excrescence which was made the subject of circumcision by the ancient Egyptians; and not the *preputium clitoridis* and the *nymphæ*, as has been asserted by many writers, both of ancient and modern times? Or are the elongations of the latter structures not to be identified with the extraordinary growths from the pubis here described by Sonini? The operation for the removal of these bodies, which is practised by women, is required to be performed agreeably to ancient prescription, at the commencement of the swelling of the Nile. The ordinary age of its subjects is about eight years.

The upper part of the *mons veneris*, which by the French is called *PENIL*, to distinguish it from the inferior portion, is sometimes the seat of a distressing malformation, that of a preternatural and vicarious outlet from the bladder.

The *mons veneris* is occasionally also the seat of acute shooting pains, and of painfully tensive and dragging sensations, sometimes alternating with similar affections of the labia and groins, and at other times extending to the hypogastrium and iliac regions:



but seldom admitting of being referred to their causes or proximate seats. They are, however, generally supposed to be indicative of certain morbid conditions of the uterus, or of such of its dependences as, together with it, are said to constitute the uterine system. Many observations are however wanting to give much practical value to these conjectures.

The surfaces here situated are occasionally subject to fungoid excrescences. See vol. i. p. 37, of the 4th edition of this work.

It may occur to the recollection of such of our readers as are experienced in the practical duties of midwifery, that puerperals have sometimes to refer to the region of the pubes, and especially to the precise locality of the symphysis, as the seat of acute pains. The external structure of the part is generally found slightly, sometimes considerably tumified; and is always exquisitely tender upon the application of pressure. This affection is not unfrequently the sequel of a perfectly easy labour. It is very often accompanied by some difficulty in voiding the contents of the bladder. When not the result of rupture, or of much contusion of the ligaments of the symphysis, it speedily yields to the action of a blister. From the near vicinity of the part to be thus treated, to the bladder, it is scarcely necessary to remind the reader, that a layer of thin muslin or of silver paper should be interposed between the blister and the integument to be vesicated.

OF THE STRUCTURE, FUNCTIONS, AND DISEASES OF THE LABIA MAJORA.—At the anterior commissure, which nearly corresponds with the angle of the pubis, the mons veneris becomes distributed at its inferior limits into two parallel and equal columns, of a soft, carneous, and integumental structure, which are called labia majora pudendi. These constitute the lateral and external boundaries of the vulva, or genital fissure. The several constituents of their texture are, skin, which is usually very soft and delicate; sebaceous glands; glands in common with the mons veneris for the secretion of hair; numerous capillary arteries, principally derived from the superficial pudic branches of the femorals; corresponding veins; lymphatics, which discharge themselves into the inguinal glands; nerves which are derived from the lumbar plexus; a muscle and a mucous membrane, or perhaps, more properly, an internal integumental surface, charged with muciparous glands. The commencement of the division of the mons veneris into the labial columns, is called the anterior,

and sometimes the superior commissure, and their line of meeting again inferiorly, where they communicate with the anterior perinæum, the inferior, and occasionally the posterior commissure.

In young and healthy subjects, and in the corpulent of all ages, the labia are generally firm and well evolved. In some few individuals they are small and slender, as if consisting of little more than of the folds of their integumental tissue; whilst in a third class they are more voluminous, but shrunk, shrivelled, and pendulous; as is generally the case in old age and in states of great emaciation from whatever cause. Their cellular tissue is somewhat more loose and spongy than the same structure in other parts of the body; and is intermixed with numerous capillary vessels, both sanguiferous and lymphatic. The labia, in their healthy state, are of equal length, parallel to each other, and, in the more common attitudes of the body, in mutual apposition by their internal surfaces. Their sebaceous glands, in common with those of the inguinal integuments, secrete a fluid of a sebaceo-oleaginous character, to guard both the one and the other surface against the effects of friction. Their internal surfaces present the character and perform the functions of a mucous membrane. Underneath these surfaces we can trace some muscular fibres, which take their origin from the pubis, advance in two slender bundles, to invest the corpora cavernosa clitoridis, and then descend on either side of the vestibule, to be inserted in a common plane to the ischio-perineal and coccygeal muscles. From the course which is followed by the muscular fibres thus distributed, it is manifest that they are intended to act, in some degree, as constrictors of the part which they surround.

THE USES OF THE LABIA are, to contribute, with other tissues which are contiguous to them, to fill up and to give a suitable finish to the architecture of the inferior aperture of the pelvis; to afford protection to the vestibule and os externum against the intrusion of cold air and other noxious influences; and to supply the passage to and from the uterus, with such a valvular outlet as should be equally competent to limit moderately its capacity, or to admit of its indefinite development, agreeably to the demands of its numerous and admirable functions.

OF THE DISEASES OF THE LABIA MAJORA.—Consisting, as we have seen they do, of a more than usual proportion of CELLULAR STRUCTURE, the labia are subject, in common with other parts

of the body similarly constructed, to infiltrations of serous fluids, by which they are occasionally prodigiously tumified. In cases of anasarca of the lower extremities, whether as an effect of a general hydropic affection, or as the result of an accidental or temporary cause, these organs seldom fail to become similarly affected. In ordinary cases, the enlargement amounts only to a moderate degree of intumescence, sufficient only to occasion a sense of slight stiffness and tenderness. In some other cases, in such e. g. as are found to depend upon considerable obstructions, either to the sanguiferous or to the lymphatic circulation, the labia majora become the seats of intense pain, as well as of the most prodigious enlargement, from serous infiltrations. In a certain proportion of cases the morbid effusion is made only into the cellular structure of one labium: whilst, in the greater number, they both become equally parties to the distension. The more frequent cause of anasarcous tumefactions of the labia, when they occur in their most painful and distressing forms, is pressure of the gravid uterus on the lymphatic vessels, in the course of their passage through the pelvis, at an advanced period of gestation; and these effects usually occur in women having pelves of sufficient amplitude to admit of the sinking of the gravid uterus more or less deeply into their cavity, at a late period of pregnancy.

Some writers on midwifery have recommended incisions into the labia in all cases of distressingly painful distension, from the infiltrations which form the subject of our present consideration. As far as the author can speak from personal experience, he could scarcely feel himself warranted in objecting to that practice. The reader, however, should be apprised that practitioners of eminence have strongly reprobated it; grounding their objections to it on the great tendency which, they assert, wounds inflicted on these parts have to become ill-conditioned, and to run into fatal inflammations and sloughings. Aspasia's case of hydrocele in the female as recorded by *Ætius* was probably an instance of enlargement of one of the labia from this cause. *Mémoires de l'Académie Royale de Chirurgie*, tom. iii., p. 102.

OF ENLARGEMENTS OF THE LABIA MAJORA, FROM INFLAMMATION AND EXTRAVASATION OF BLOOD INTO THEIR SUBSTANCE.—These structures are liable to several varieties of inflammation. Of these one of the principal, and the only one which it is the author's intention to illustrate in this place, is what is usually



called phlegmonous inflammation. This affection is most frequently the result of accidental contusion. It is attended with an acute throbbing pain from the beginning ; and when depending upon a constitutional cause, is generally ushered in by a severe rigor or by a succession of smaller chills. These are followed by the ordinary symptoms of pyrexia ; and the disease in most cases makes a rapid progress towards the completion of its natural crisis, that of suppuration and abscess. The abscess, almost always, points towards the internal surface of the affected labium. When the practitioner is consulted at the commencement of the suppurative process, he should attempt to cut it short, or to arrest its progress by resolution. To meet that indication, he will have to order an ample abstraction of blood by general venesection, the application of leeches, from half-a-dozen to a dozen, to the interior surface of the part affected ; as also fomentations to relieve pain and to promote an abundant discharge of blood from the leech-bites. To these measures may frequently with great advantage be either premised or added the exhibition of an emetic, consisting of two grains of tartarised antimony and a scruple of the powder of ipecacuanha. This vigorous practice, if it might not at once arrest the inflammatory action, will seldom fail to have the effect of diminishing its violence, and will therefore essentially contribute to limit the extent of the destruction of tissue which otherwise might be expected to take place. In the event, however, of the suppurative action continuing, soft poultices should be applied in frequent succession, to soothe and to mature the process ; and as soon as there shall be felt a distinct fluctuation of a fluid sufficiently accessible to the lancet, a free puncture should be made into the most depending part of the abscess. The application of poultices for two or three days afterwards, and then the use of simple dressings, will in the greater number of cases speedily effect a cure.

Cases of inflammation of the labia from contusion are not always so simple as the above description might lead the reader to suppose ; extravasation into one portion being sometimes superadded to simple contusion of another part of the structure. Mrs. T., a haberdasher, in attempting to reach a bandbox from one of her highest shelves, lost her footing, and came down stride-wise upon the back of a heavy old-fashioned mahogany chair. The fall was almost immediately succeeded by a considerable swelling and by intense pain of the left labium. A pardonable



excess of modesty prevented her seeking advice till the third day after the accident. The tumour had been exquisitely painful from the beginning. During his first visit on the day above mentioned, the author found Mrs. T. the subject of considerable fever; the affected labium was swollen to the size of a goose's egg. The whole of it was more or less indurated. In some parts it felt knotted and unequal. Its internal surface, more especially in the neighbourhood of the inferior commissure, presented a vivid inflammatory appearance. At this part there was also indistinctly to be recognised a fluctuation of deep-seated fluid. Its temperature was that of a high phlogosis; whilst the neighbouring surfaces, including the groin and the upper parts of the thigh of the same side, exhibited extensive marks of ecchymosis. The patient seemed desirous of representing the THROB-BING of the affected part as the principal cause of her distress: and this, she added, "it was that had so completely deprived her of her natural rest." She had had no sleep since the moment of her accident. The above symptoms suggested the following treatment. The fluctuation being obscure, it was deemed proper to defer the operation of puncturing to the following day; when it was calculated the contents of the abscess might be found in a more ripened state, and more within the reach of the lancet. But inasmuch as deep-seated suppuration was going on, and the patient was enduring extreme pain, it was deemed advisable to check the activity of that process by free general bleeding; such as should induce full fainting. To limit still further the destruction of tissue, which there was every reason to fear might yet prove considerable, eight leeches were ordered to be applied to the more inflamed parts of the tumour, and subsequently a succession of fomentations and soft poultices to the whole of the pudendum. Aperient and other antiphlogistic medicines, with an anodyne draught to be taken at bed-time, were prescribed. On the following day it was reported that the patient had slept several hours in the course of the night. Her countenance exhibited less distress; but still she complained of much deep-seated aching and throbbing pain of the part. The fluctuation of the effused fluid which had been felt so obscurely on the previous day, was then distinct and sufficiently approximated towards the surface to warrant an incision. That measure was accordingly proposed, but rejected by the patient. The poultices were therefore ordered to be continued; and after the lapse of about thirty

hours from that time, the abscess burst and gave an exit to what probably might amount to an ounce of well-concocted purulent matter, and to about double the quantity of an imperfectly-coagulated grume. A soft poultice of bread and water was applied, and ordered to be frequently renewed. On the succeeding day the discharge being sanious and offensive, and not laudably purulent, the poultices were ordered to be made very stiff in the first instance, and then to be softened down into a thin pulp, with equal portions of port-wine and decoction of bark; with which also the interior of the ulcer was directed to be well syringed morning and evening. By this treatment the character of the discharge was speedily improved, and the wounded structure of the part was eventually so well filled up, as to have left but little indication of the injury which it had sustained.

An interesting example is given in the *Recueil Périodique*, vol. i. p. 455, which occurred in the practice of M. Sedillot the younger, of an injury of these parts, which was sustained by an adult female, precisely from the same cause as in the case just related. But in the subject of M. Sedillot's observation, the labia majora, the nymphæ, and even the vagina, WERE EXTENSIVELY LACERATED. The injury was immediately succeeded by a profuse hæmorrhage. The loss of blood was indeed in that case so considerable, that its arrest is made the prominent part of M. Sedillot's history. It was effected by plugging the vagina. There is introduced in the same article of the work referred to, a case of laceration of these parts, which actually proved fatal from loss of blood. It occurred in the practice of M. Causabon.

The labia majora are not so vascular in proportion to their bulk as are the labia minora, or nymphæ. Nevertheless, if the author might depend upon the results of his own experience in this matter, they are much more frequently the seat of varicose enlargement of their veins. Intumescence from this cause is, however, a rare disease, excepting as an accompaniment of pregnancy; and then it is seldom complained of as a cause of any considerable distress: whereas, in some cases of intumescence, of apparently the same kind, in the absence of gestation, it has been an exquisitely painful sensation. How far this character of it may be imputed exclusively to violent distension of the varicosed portions of the affected veins, or whether there may be also superadded some essentially suffering condition of the accompanying nerves, the author has had no means of determining.

The pain itself is usually described as a deep-seated and exquisitely intense aching. The prognosis upon the whole, is unfavourable; inasmuch as no treatment has hitherto been offered which has been really calculated either to effect a cure of the disease, or even materially to lessen the patient's misery. It has been said that fomentations have occasionally given temporary relief; and we may well presume, from what we know of their effects in other painful diseases, that they might also in this, exert a very beneficial influence in soothing the extreme sensibility of the affected part. In other cases, however, an apparently opposite practice has been adopted; viz., that of an assiduous use of cold and astringent lotions to the part, with the view of promoting vascular contraction, and eventually of reducing the size of the varicose enlargements. Again, it has been proposed to give gentle support to the relaxed structures of the part, by means of well-adapted compresses. The principle of this indication is purely mechanical, and is obviously the same as that which has dictated the use of bandages and laced stockings to varicose legs. The author has never seen much good effected by these contrivances when applied in the circumstances here supposed to the labia. Indeed, it seldom happens that patients can be prevailed upon to persist in the use of them for many days together. In one instance, even moderate pressure became intolerable in less than six hours. That unfortunate case furnished also an example of the perfect inutility of puncturing varicose enlargements of these parts. The case was that of a poor woman of sixty-eight years of age, who in the earlier part of her life had had a numerous family. She had been the subject of the disease for several years. At the time of the author's first knowledge of her, she had been admitted a patient of a public charity, to which he was professionally attached. She was, however, more immediately under the care of the late Mr. Lawrence, of Featherstone Buildings, the Surgeon to the Institution. Both labia were in some degree varicose; but the left had acquired the volume of a large orange. The intensity of the patient's suffering was such, that she expressed to Mr. Lawrence, her perfect willingness to undergo any operation or to submit to any kind of treatment which he might propose or devise for her relief. After consulting with his colleagues, Mr. L. proposed to try the effect of a puncture into a principal varix, with a view to effect suddenly a reduction of the painful distension of the part.



This measure was accordingly adopted as a last resource, and as one which afforded at least a chance of giving some relief to the intolerable sufferings of the poor woman. The puncture did not appear to the author to have been immoderately large. But such were the magnitude and impetuosity of the torrent of blood which issued from it, that the patient's life was placed in the greatest jeopardy by the operation; whereas, in the ultimate result, no material benefit was derived from it even as a means of relieving pain. The fate of the late Lord Stair may be quoted as a pertinent example of the danger of attempts to disturb varicose tumours by surgical operations. Since the period here referred to, the author has repeatedly succeeded in discussing varicose tumours of the hæmorrhoidal veins by passing through them two silk threads made to follow a needle so small as to carry them through with some difficulty. Each chord is passed through transversely to the other. The ends have been left loose and long so as to be ready if necessary to be tied together at pleasure. That part of the operation has seldom been required to be performed excepting very loosely; inasmuch as the tumour has entirely disappeared without it in about a fortnight or three weeks, and often within the first ten days.

The sudden intumescence of the labia from the accumulation of extravasated blood during labour, of which there are recorded some interesting examples, is probably in many cases indebted, for its predisponent cause, to a varicose condition of their veins, acquired during pregnancy, or, as perhaps most frequently happens, to the same condition of the veinous branches immediately communicating with them. The more distended portion of those veins having their tunics enfeebled in proportion to their distension during pregnancy, are thus exposed to the danger of a solution of continuity, when they become the subjects of a still greater distension, which they can scarcely fail to become, during labours of great severity. The vessels which most frequently give way in the extravasations here referred to, are probably portions of the pudic veins. Immediately upon the blood making its escape from the ruptured vessels, it finds its way through the intermediate cellular tissue into the labium of the same side, and produces that sudden and extraordinary enlargement of it, which might be considered as almost forming an essential part of the pathological history of such accidents. The distension has in some cases been so enormous as to effect in



a few minutes the spontaneous laceration of the internal surface of the labium. A case of this description occurred in the practice of the author, in the summer of 1822, see pp. 45 to 47 of the 4to edition; no particular expression of pain accompanied the rupture, and the patient eventually recovered the most perfect health.

ENLARGEMENT OF THE LABIA MAJORA IN CONSEQUENCE OF BECOMING THE SEAT OF ANEURISMAL CYSTS.—The arteries of these parts, from being embedded in a structure little calculated to give them firm support, may easily become the subjects of aneurismal enlargements. It has, however, never happened to the author to have met with a case of this kind; but in illustration of the possibility of the fact, the 32nd observation of Mauriceau, *Maladies des Femmes*, vol. ii. p. 29, may be advantageously perused by the reader. The subject of the history was upwards of sixty years of age when she first consulted her surgeon, and then she had been the subject of enlargement of her left labium for five-and-twenty years. Whether the tumour had been a painful one during any part of that period, is not directly stated. But Mauriceau, on finding that it presented the character of a considerable fluctuation, determined, with the advice of two of his colleagues, to make an opening into it. The operation was followed by the discharge of “a great abundance of aneurismal matter like the lees of red wine.” The patient recovered in a few days, and was thus relieved of an inconvenience which for many years had given her much annoyance and anxiety. The treatment adopted on this occasion had never been suggested before, by reason of its having been suspected that the case was one of hernia. Aneurismal tumours may be distinguished from hernial protusions, by their circumscribed locality, by their contents being included within thickly coated cysts, by their not extending continuously to the groin, and by their not possessing the usual characteristic attributes of true hernial enlargements.

OF ENLARGEMENTS OF THE LABIA MAJORA FROM HERNIA.—Hernial swellings of these parts are of three special varieties, according to the localities of the intestinal protrusions. Of these the most frequent is inguinal hernia; which however does not occur so frequently in women as in men. It is distinguished by the characteristic symptoms of intestinal hernia; by the elastic feel of the tumour; by its occupying the course of the

round ligament; by there being little or no pain on pressure; by an increased bulk of the part during coughing, and in consequence of constipation; and in most cases by the peculiar crepitus of hernial tumours. The treatment must proceed on general principles. Reduction will naturally present itself to the practitioner's mind as a first object. In common cases, that object will generally be easily attained. In others, certain suitable measures must be premised in order to prepare the patient for the operation; such as free bleeding, the use of the warm-bath, the exhibition of nauseating doses of tartarised antimony, or of one of the preparations of tobacco in cautious quantities. It is of great importance to succeed in the reduction of the protruded loop of intestines without cutting; inasmuch as the latter operation is considerably more difficult of performance in women than in men. That ultimate resource of our art is however sometimes necessary. Operations for this variety of hernia are numerously recorded, and the high value of them is duly appreciated by the profession. One of the most interesting which it is possible for the author to refer to, may be found registered at great length in Mr. Benjamin Gooch's *Cases and Remarks on Surgery*, vol. ii. p. 200. See also Sandifort's *Thesaurus*, vol. iii. p. 89; *Essai sur différentes Hernies*, par M. Hoin; *Précis des Opérations Chirurgicales*, Le Blanc, t. ii. p. 241.

Another variety of intestinal protrusion, is what has been called *hernia thyroïdea*. This is a very rare variety; and even its existence has been doubted. See Richerand's article, *Dictionnaire des Sciences Médicales*, vol. xxi. p. 166. It consists in the protrusion of a loop of intestines through one of the obturator or thyroïd foramina, in front of the pelvis. Over each of these apertures there is stretched a strong membrane, to the surfaces of which are attached the obturator muscles. These muscles, deriving their origin respectively the one from the inside the other from the outside of the foramen ovale, would seem, on first view, to occupy the aperture so completely, as to leave no space for the escape of portions of intestine, nor of any other pendulous structure from the abdominal cavity. On a careful dissection of the parts, however, it will be found, that the foramen ovale is not so entirely made up by its obturator membrane and muscles, but there is left at its upper part interiorly an oblique space, known by the name of the sinuosity of the ischium, for the passage of the obturator blood-vessels and nerves. Through

this space, portions of intestine have been known to protrude sufficient to form the present variety of hernia.

The best known treatise on this subject, forms part of an Essay on Hernia, by M. de Garengot, in the Memoirs of the Royal Academy of Surgery, vol. i. p. 709, which the author begs earnestly to recommend to the perusal of his readers.

To the above varieties of hernial protrusions into the immediate neighbourhood of the external genitals in females, Professor Burns adds a third, which he calls pudendal hernia, and which occupies the middle of the labium. "It may be traced," says that writer, "into the cavity of the pelvis, on the inside of the ramus of the ischium, and can be felt as far as the vagina extends." It has never occurred to the author to have met with this variety of hernia. It is obvious that its treatment must be attended with considerable difficulty. The most expert operator and mechanic would of course succeed best. Burns' Principles of Midwifery, p. 60; Journ. Général de Méd. tom. lvi. p. 259.

OF PROTRUSION OF THE URINARY BLADDER AS A CAUSE OF INTUMESCENCE OF THE LABIA.—Hernia vesicæ. Hernia cystica. Cystocele. This rare variety of enlargement of a labium pudendi is the result of displacement of a part of the urinary bladder. Such displacement of the bladder is, however, seldom so situated, or its protrusion so great, as to occasion a swelling externally. When it does occur, it principally occupies the internal portion of the labium, and, in common with it, the tract continuous from it along the os externum and vagina, within and in front of the pelvis. The proximate cause and an essential condition of this displacement is, a state of separation of the fibrous and cellular textures of the part through which the protrusion makes its transit. The parietes of the vagina, it is well known, are liable to many influences productive of relaxation and want of tone. This kind of tumour is to be distinguished by its wanting the common symptoms of pudendal hernia; by there being no œdema of the affected labium; by its not being indurated like a scirrhus of the part, nor tuberculated and knotty like a labium tumified by extravasated blood; by pressure being sometimes found competent to effect a temporary reduction of its bulk, and probably in most cases by a tortuous direction, or some other variety of malposition of the urethra. In the treat-



ment of cases of protruded portions of the bladder, reduction should be considered as a first object. Before, however, it could be proper to institute any attempt to accomplish that object, the protruding portion of the bladder should be emptied; but this the practitioner would not always find easy nor even practicable to effect. Should he succeed in both these objects, his remaining indications will be to give tone to the relaxed parietes of the vagina by astringent injections, and an adequate mechanical support to them by a well-adapted pessary or other contrivance, which should be competent to prevent a future descent. A remarkable example of a hernial protrusion of the bladder, occurred some years ago in the author's practice. The subject of it, who was a patient of his friend, Mr. Morgan, of Bedford-row, was advanced between seven and eight months in her first pregnancy. The author's opinion was more especially requested on account of the gestation. The tumour, which was about the size of a lemon, occupied the left labium, and principally an inferior portion of the vestibule, and of the external orifice on the same side; so as to have had the appearance, more than the actual effect, of blocking up the vaginal passage. At the full period of gestation, the lady was delivered of a living child without experiencing any sensibly additional difficulty from the presence of the tumour. In about a twelvemonth afterwards, the author had an opportunity of hearing that the hernial enlargement remained precisely in the state in which he had seen it, excepting that a superficial ulcer of an unseemly appearance, on a part of its surface which was most exposed to friction from the patient's dress, had completely healed soon after her confinement.

Allied to pudendal herniæ vesicæ is that of perineal hernia of the same viscus, of which see two interesting cases by Mery, *Mémoires de l'Académie Roy. des Sciences*, an. 1713. An account of the 2nd case by Carude, surgeon at Avignon, is quoted (where from is not stated) by Baron Boyer in his *Traité des Maladies Chirurgicales*, vol. viii. p. 372. Another case is given by Hartman, and where also a urinary calculus which weighed three ounces was found in a cul-de-sac connected with the bladder. *Ephemerid. Germanic.* Dec. 2, ann. 5. 1686. Obs. 71. See also a case of pudendal hernia of the bladder of a peculiar kind in Sir Astley Cooper's work on *Hernia*, 2nd pl. Mr. A. Burns found the bladder protruded so as to form a pudendal



hernia in the body of an old woman. Monro's *Morbid Anatomy of the Gullet, &c.*, p. 523. Cloquet refers to a case of pudendal hernia. *Observ. sur une Hernie Vulvaire*. Paris, 1821. Was this a case of hernia of the bladder? Scarpa mentions two cases of pudendal hernia, of which one was a case of cystocele in a lady who had had one child. *Supplement*, pp. 140 et 142. Another case of pudendal cystocele is quoted by the French translator of Scarpa, from the *Revue Médicale*, December 1832. *Supplement*, p. 145.

IS THE AFRICAN ELONGATION OF THE EXTERNAL GENITALS AN AFFECTION OF THE LABIA MAJORA?—The fact of the remarkable structural conformation intended in this place to be made the subject of a few remarks, has been known in Europe since the year 1686, when Ten Rhyne, *De Promontorio Bonæ-Spei*, furnished a description of it. During the last half century, many authors have referred to and described it, and yet even at the present day it seems to be a matter of some doubt whether the Hottentot apron, as by some it has been called, be an enlargement of any of the natural structures common to women of all countries, or whether it is an indigenous growth superadded to such structures, but not really forming a part of them, peculiar to the females of one or more tribes of Africans. By some it has been described as a prolongation of the nymphæ, and by others of the labia majora; whilst by a third class it has been represented as an original exerescent production, taking its origin from or near the superior angle of the sexual fissure immediately above the clitoris. M. Vaillant, a traveller whose accuracy and fidelity have never been questioned, personally examined the Hottentot apron with great attention. He moreover took a drawing of it on the spot, from which an engraving has since been produced. M. Vaillant says, that the peculiar substance in question is not a prolongation of the nymphæ, but of the labia majora; and he assures us, that by the Hottentots themselves it is considered not only not a deformity, but an affair of fashion and of taste; and that its length depends on the greater or less pains which its subjects take to promote the growth of their singular decoration. Barrow entertains the same opinion, and it has also been adopted by Professor Moreau de la Sarthe. *Vaillant's Travels in Africa*; Moreau de la Sarthe, *Histoire Naturelle de la Femme*, vol. ii. p. 529. Captain Cook and most other voyagers have considered the growth in question as an elongation of the nymphæ. Such also

is the opinion of Dr. Somerville, *Medico-Chirurgical Transactions*, vol. vii. part 2; and likewise that of a very intelligent physician, personally known to the author, now resident at the Cape of Good Hope. The analogy to be derived from the fact that the clitoris and its prepuce, together with some portions at least of the labia minora, are made the subjects of circumcision in almost all Mahommedan countries, appears to lead to the same conclusion. However supported by authority, it is obvious that both of the above opinions cannot be true: and it being certain that one or the other must be unfounded as to the actual fact which it professes to represent, it is therefore possible that they may both be erroneous. We accordingly find that both have been disputed, if not absolutely successfully controverted. Péron and Lesueur submitted to the French Institute in the year 1805 two Memoirs on this singular production. Their contents had been originally intended to form part of a work projected by the former gentleman on the history of the several savage nations which he had visited. See Capt. Fresneau's *Continuation du Voyage de Péron aux Terres Australes*, Paris, 1816.

The following important facts, in correction of former travellers, seem to be satisfactorily made out by the authors of the above essays; viz. that the extraordinary growth improperly called the Hottentot apron, is a peculiarity of the women of another people; that it is never to be met with among the Hottentots; that it is constantly a characteristic structure of the women of a numerous nation known under the name of Houzouânas, or Boschimans; that it is to be met with equally among the young and the old, with the difference simply of volume; it being smaller in the former than in the latter; that it has nothing in common with the several parts which constitute the external genitals of the women of other nations; that it is not a duplicature of the integument of the abdomen; that it is not a prolongation, either natural or artificial, of the labia majora nor of the nymphæ; that its existence is independent of any disease; that it is not the result of any artificial mode of prolongation; and that it gradually disappears in consequence of cross marriages between the races of the Boschimans and the Hottentots. Subsequently to the date of the above Memoirs their curious contents have been confirmed by the researches of M. de Janssens, instituted during a residence of three weeks amongst the Boschimans, which left no doubt on his mind that

all the Boschiman women were subjects of this conformation. The constituent structure of the superadded part consists of a fleshy substance, covered with a brownish integument. It takes its origin from the superior commissure of the labia majora. From this source it becomes gradually developed in width, and, after dividing itself at no great distance from its origin, it descends in two pendulous lapels of a triangular figure, so as to form the pudendal apron now pretty satisfactorily proved to be a characteristic distinction of the Boschiman female.

OF THE OOZING TUMOUR OF THE LABIA MAJORA.—This disease was first described by Sir Charles Clarke, in his work ON THE DISEASES OF FEMALES. It consists in a morbid elevation of the integument into thickly-studded prominences, having between them interstices or depressions, from which oozes the humour, which gives this affection its name. The colour of the tumour varies but little from that of the cuticle of the neighbouring surfaces, “and a projection very much resembling it might be made by the firm application of a piece of fine netting to an œdematous part during a few seconds.” It seldom rises more than a line or two, and still more rarely, than a third of an inch, above the level of the healthy skin of the parts immediately surrounding it. Sometimes the parts in the neighbourhood are in a state of œdema; but the tumour itself is not œdematous. The secretion from the affected surface is of a watery character, and corresponds in appearance with that of the vaginal discharge from the cauliflower excrescence. The quantity of fluid thus furnished is always in proportion to the extent of the disease; but it is moreover to a certain degree influenced by the state of constitution of the subject, and by changes in the state of the atmosphere. It never has presented itself in early life, and not often at any other time, excepting in corpulent subjects, and in women who have had their constitutions debilitated by frequent child-bearing and other causes. “The oozing tumour of one of the labia sometimes produces irritation upon that of the opposite side; but in no other way than any extraneous body similarly situated would do.” This troublesome affection is attended by a more or less constant itching of the parts; and also, in some cases, by a sense of preternatural heat. The never-ceasing stillicidium has the effect of sensibly weakening the patient; and as far as experience has yet proved, it should seem that the malady is an incurable one. The remedies suggested by Sir Charles Clarke, for



its relief, are bark exhibited internally, and common starch powder, or a mixture of starch powder with sulphate of copper finely levigated, applied by sprinkling to the parts; or a solution of sulphate of copper and nitrate of silver applied in the form of lotion. That writer further recommends a trial to be made of a solution of gum arabic in a decoction of oak bark; and adds that "cold water is also a valuable remedy, and there are no cases in which it will not afford much temporary comfort." Amongst the local applications, the use of which he has suggested, he appears chiefly to rely upon some form or other of alcohol. "Strong new port wine," he observes, "has afforded great relief; but when this has failed, brandy or arquebusade may be employed, and even alcohol will be useful when the weaker spirits are in no respect beneficial in controlling the discharge." In one case the discharge was so considerable, and the disease altogether so distressing, that Sir Charles Clarke, at the earnest solicitation of the patient, was induced to remove the affected labia with the scalpel. The operation was attended with perfect success. Observations on the Disease of Females, etc. vol. ii. p. 127.

OF SCROFULOUS AND OTHER TUMOURS OCCUPYING THE SUBSTANCE OF THE LABIA MAJORA.—Hard and solid tumours of an indolent character may sometimes form within the substance of the labia. Such tumours, when of a scrofulous character, are usually not very painful, even when they proceed to suppuration. This variety of tumour usually terminates in a benignant suppuration, and in an abscess which eventually heals. It is to be treated on general principles, agreeably to the indications for the treatment of scrofulous abscesses in other parts of the body. ENCYSTED TUMOURS containing a glairy fluid have occasionally been formed within the substance of the labia. Such tumours have sometimes been treated by puncture. They are however much more effectually removed by being cleanly dissected out.

OF PENDULOUS TUMOURS FROM THE SURFACES OF THE LABIA MAJORA.—These are of different textures, sometimes fleshy, sometimes polypöid and of various degrees of consistence, occasionally steatomatous, and at other times membranous and vesiculated like bunches of grapes. The part of the labium from which the tumours of this class are usually suspended, is its internal surface. In illustration of the pathology of some of them see an interesting case, entitled "*De abscessu mucocarnoso botryöide sinistri labii vulvæ feliciter exciso,*" Auctore,



Dr. D. Semuelli Grassio. *Ephemerid. Germanic. dec. iii. an. 7*, p. 148. 1699. See also another equally interesting case in the first decuria of the same work, published in the years 1675, 1676. Excrecent bodies from the labia have generally been successfully removed by extirpation, which has sometimes been effected by a ligature, and at other times by the knife. Immense masses of fleshy and muco-carneous structure have thus from time to time been extirpated by surgical operations, which happily have seldom been attended by any considerable losses of blood.

OF THE CLITORIS AND NYPHÆ.—The clitoris is a peculiarly sexual organ, very analogous both as to its structure and uses to the male penis. It arises in two columnar cavernous bodies from the inside respectively of the rami of the ischia and pubes. These two bodies meet at the angle of the pubis, and being included within a common covering of a cellulo-membranous texture, they together form the body of the clitoris. The structure of this organ being highly cellular and cavernous, it is considered to be in a great degree if not equally erectile with the penis, and like it susceptible of influences from the passion, the interests of which it is supposed to be especially intended to subserve. It is invested by a covering which is called its prepuce, and which when produced forms the membranous folds on each side called the nymphæ or labia minora. The body of the clitoris is tipped at its anterior part by a gland, which is very inferior in size, but is similar in texture, to the glans penis. This glandular part of the clitoris is almost altogether covered in and concealed by its prepuce. The prepuce is precisely of the same texture with the nymphæ, and they are both exceedingly vascular. The entire system of the clitoris is supplied with blood from the internal pudic arteries. These discharge themselves into the cavernous receptacles of the body of the clitoris, and thence they proceed, in common with those of the prepuce and labia minora, to anastomose into the corresponding branches of the pudic veins. The nervous tissues of the clitoris and its productions, are principally supplied from the internal pudics. The clitoris is not, like the penis, perforated by a urethra, the passage from the bladder being situated below and behind it. The principal use of the clitoris is probably to contribute a large share, and perhaps the greater part, of the gratification which the female derives from sexual intercourse.

The nymphæ, *alæ internæ minores clitoridis*, are membrano-

carneous bodies which are situated within the genital fissure, consisting of foldings of the integumental tissues of the interior of the vulva. They take their origin from the prepuce of the clitoris, of which they are productions, and descend on each side within the rima pudendi in two flaccid triangular webs until they reach an inferior portion of the vulva, where they usually terminate. In their colour and general appearance they present, as has been supposed, some resemblance to the crest of a cock. They are of very different magnitude in different individuals. In infants and in the foetal state they are proportionally large. In some adult subjects they are so short as not to project half an inch from the clitoris, and equally small in their other dimensions: whilst in others they exceed in magnitude even the labia majora. Some writers have connected with their greater or smaller volume various degrees of constitutional ardour. Their structure is exceedingly vascular. No tissues of the human fabric can be made to present a thicker web of vascular structure, upon being charged with fine injection, than these bodies. Like all the softer textures of the body they become wrinkled and flaccid in advanced life; whilst in very old age they occasionally become exceedingly pendulous and elongated. They are supplied with nervous filaments from the internal pudics, and with blood-vessels from the internal pudic arteries and veins.

The nymphæ are subject to most of the diseases incident to the general surfaces of the vulva; and being as it were a part and parcel of the structural system of the clitoris, they generally become parties in the results of the greater number of diseases to which that remarkable organ is subject. Among the diseases of the clitoris, one of the principal is a morbid excess of magnitude, of which the most frequent form is that of preternatural elongation. This variety of enlargement is most frequently the consequence of a venereal taint. The only case of a clitoris very considerable for its magnitude, which has come within the cognizance of the author, did certainly owe its existence to that cause. The subject of it was taken from a public street into one of the sick wards of St. Giles's workhouse, where she died. Her clitoris in a flaccid state was about the size of the male penis in the same condition. On one side it appeared to adhere to the vestibulous surface of the vulva. There was no appearance of a recent venereal affection. Upon cutting into the substance of the clitoris and its corpora cavernosa, no change in structure

could be observed, beyond what might be imputed to simple enlargement from distension. The glans clitoridis appeared, in proportion, larger than the body of the same organ beyond it, as was the body itself larger, in a similar proportion, than its corpora cavernosa. Cases of elongation of the clitoris are numerous recorded. Some of the histories on this subject are so extravagant as to set at defiance the most capacious faith. An entire quarto thickly-printed page of references to cases of monstrous clitorides, are given by a contributor to the accumulation of that sort of treasure in the *Ephemerides Germ.* dec. iii. an. 4, p. 231. The author has reported in the 4th edition of the present work some cases of this kind which have occurred in the practice of his contemporaries and countrymen.

Excessive size of the clitoris has occasionally led parents to mistake the sex of their children; and when extraordinary magnitude of this organ has been accompanied by other unusual circumstances of sexual conformation, added to certain peculiarities of constitutional character, a union of the organs and functions of both sexes in the same individual, constituting hermaphroditism, has sometimes been assumed to have existed. So great indeed have been the mistakes of sex in cases of imperfect construction of the genitals, that they have not only led to unsuccessful attempts to satisfy the imperfectly understood claims of the sexual passion, but to the disturbance and abrogation of marriage negotiations and contracts. There is now living in this metropolis a person whose sexual organs are so remarkably confused, but whose passions became so far developed subsequently to the accession of the age of puberty, as to have led to eager but unsuccessful attempts to obtain their gratification. The subject of the extraordinary irregularity of conformation here alluded to, was baptised as a female, and dressed in female clothes; and during the years of childhood and adolescence, she considered herself as belonging to the female sex. Influenced by the movements of the sexual passion, and walking alone on a public road in the outskirts of the town at a late hour in the evening, she sought and obtained an opportunity to retire to a private apartment with a gentleman. The gentleman's anticipations were disappointed, and under a mistaken impression, as to the character and intentions of his companion, committed a furious breach of the peace, of which the consequence to both the parties was their being taken into the custody of the police for the night, and



the next morning, to the public Office in Bow-street. The explanations there given by the gentleman led eventually to a professional examination into the sex of the other person. The business of this inquiry was referred to a medical gentleman, who communicated its results to one of his intimate friends, through whose influence the author, in the course of some weeks subsequently, succeeded in obtaining an opportunity of examining the sexual conformation of the subject of the present narrative for himself. This interview and inquiry took place in the presence of Mr. Pattison, then Professor of Anatomy in University College, of Dr. Rivere of Weybridge, and of the late Sir Joseph Yorke, together with the author and two other gentlemen. The appearance of the external genitals was as follows: The clitoris, or rather a clitoridöid body situated in the usual locality of a clitoris, was a little larger than that organ usually is in the adult subject. A tract equal to something more than half an inch of its gland was uncovered by a prepuce; the prepuce itself was attached to the angle of the pubis, and inferiorly to the parts to which it usually adheres. The nymphæ, if with propriety they could be so designated, were but very triflingly developed. Below the root of the clitoridöid body, not indeed visible without raising in some measure that body, was to be seen a small orifice which communicated with the bladder. More inferiorly and posteriorly and precisely at the usual locality of the opening into the vagina, there was a round aperture of scarcely half an inch in diameter. This aperture was surrounded by a carneo-membranous structure of no great thickness, but of considerable firmness and tenacity. It was attempted to pass the finger through this latter opening into a supposed vagina: but such was the resistance encountered, that it was deemed expedient not to persist. A bougie was accordingly substituted for the finger, and by means of sounding with that instrument it was distinctly ascertained that the aperture in question opened only into a cul-de-sac, which terminated at about the distance of an inch from its aperture. What was the sex of this subject? On each side of the rima pudendi there were two very large pendulous bodies, covered with the ordinary integument, and sparingly sprinkled over with hairs, which had considerably the appearance of labia majora. Upon examining into the structural character of these bodies, they were distinctly ascertained to contain fully-developed testes, which communicated, by spermatic chords of the usual



bulk and feel, with the abdominal cavity. The mammæ were not developed as they commonly are in the person of a well-formed female. The width of the pelvis and position of the pubic prominence were those proper for a male subject. The voice of this singular being is rough and unmusical, of a counter-tenor pitch; and, taking generally into consideration all the circumstances of the case and all the facts thus briefly sketched, essential and auxiliary to a correct decision, there can be no doubt THAT THE SEX OF ITS SUBJECT IS MASCULINE. A very good cast of the parts just described, modelled from nature by Mr. J. Miller, is to be seen, among the obstetric preparations, in the Anatomical Museum of University College, No. 1481.

There are few examples of malformation of the genital organs that can involve the question of sex, which do not at the same time supply the proper and necessary documents, historical, physiological, and structural, to enable the professional juriconsult to come satisfactorily and without doubt to a just conclusion. It must always be borne in mind, that there are two sets of organs which are essentially, and more than any others, the characteristic distinctions of each sex. It has very rarely happened that an organ, or a system of organs, essentially the attribute of one sex, has been found within the body, or forming a part of the genital apparatus of the other: and when examples of such monstrosities have presented themselves, the parasite viscera have never been known to have conferred upon their unfortunate subjects any substantial power in the economy of reproduction; nor even, as far as the author knows, co-existed with the efficient possession of the reproductive faculty, as it naturally inheres in either sex. The case of Jean-Pierre Humbert, as communicated by M. Maret to the Academy of Dijon, and published in the second volume of the Memoirs of that society, is probably the best attested example on record, of a considerable admixture of the genital organs of both sexes co-existing in the same individual; it will be found at length in the 4to edition, pp. 66, 67, and 68. In this remarkable example of malformation, amounting, as in fact it did, to a degree of monstrosity, there was an obvious and nearly an equal commixture of the organs of each sex. We have the clitoridoid body, the circumstance which more especially brings the subject of the case under present consideration, of sufficient magnitude to emulate the male penis: but it was imperforate at its glandular extremity, and it had no communica-

tion with the vesiculæ seminales; and therefore, for both reasons, it was obviously incompetent to perform efficiently the sexual functions of the male organ. On the other hand, although there existed a uterus, together with a moiety at least of its ordinary lateral appendages, it is manifest that for want of a natural passage through its cervix, added to the want of a vagina, with which it might have communicated had it existed, that organ never could have been impregnated. M. Maret was not successful in his inquiries respecting the predominant sexual affections or passions of the subject of the narrative. All that he was able to learn was, that Pierre was passionately fond of dancing, and that he was never seen to exhibit any fondness for the sex, nor to indulge in any playful and innocent personal liberties, as by salutations or caresses, with the young women with whom he had resided or in any way associated.

OF SOME OF THE PRINCIPAL DISEASES OF THE SURFACES OF THE EXTERNAL GENITALS.—Among the diseases incident to the surfaces of the external genitals, there are, first, those which derive their origin from venereal impurities; and, secondly, those which are derived from sources totally unconnected with the exercise of the sexual passion. Of the former, a certain proportion are the results of a direct application of syphilitic virus, and the remainder the effects of divers other poisons less known and understood, but for the most part communicated by the same means. Those of the second class, are usually accompaniments and results of certain constitutional diatheses, or of morbid conditions of remote organs, and most frequently and immediately of peculiar states of irritation of the internal genitals. It was once the intention of the author not to treat of any form of venereal affections of the genitals, in this work; but influenced by the representations of friends, for whose judgment he entertains great respect, and to whose kindness he is indebted for some valuable contributory hints towards the composition of the present article, he has been induced so far to alter his plan, as to undertake, very succinctly and with especial reference to practice, to notice some of the principal forms of the diseased conditions in question as they usually present themselves in this country. He proposes accordingly to bring before the consideration of his readers such portions of the entire subject as he thinks it may be most useful to treat of under the several divisions: 1st. Of inflammations or other states of the genital surfaces, accompanied by discharges.

2dly. Of warty and other fungoid excrescences from the affected surfaces; and, 3dly, Of ulcerations of the same tissues.

The most important variety of inflammation of the external genitals of the female, is that which is accompanied by the mucopurulent discharge, which in this country is well known by its most common designation of VIRULENT GONORRHEA. The subject structures of this inflammation are those surfaces of the genital sinus, which are devoid of the coarser covering of common epidermis, and which, by reason of their being invested by an integument so delicate and transparent as to permit the colour of the blood to be easily seen through it, have been called red surfaces. These are therefore the internal surfaces of the labia, those of the clitoris and its productions the labia minora, and in short, those of the whole of the vestibulum as far as the orifice of the vagina. But the inflammation which constitutes the entire gonorrheal affection of the female genitals is not confined to the surfaces already enumerated; but makes its way through the os externum, and ascends along the mucous lining of the vagina, so as to occupy in many cases the whole of the interior surface of that passage. The gonorrheal inflammation is almost always attended, at its onset, with a distressing pruritus and a pungent sense of heat of the entire vulva, with considerable tumefaction of the interior surfaces of the labia majora, with much thickening of the prepuce of the clitoris, as also of its productions the labia minora, and with an acutely intense pain of the carunculous structures forming the parietes of the vaginal orifice. The orifice of the urethra being unavoidably a party in the general phlogosis, ardor urinæ is to be noticed as one of the earliest symptoms of the complaint. When the pain and inflammation extend to the posterior commissure, and especially to the perineum, sitting becomes a painful position: whilst in all cases of recent inflammation, accompanied with much painful swelling of the labia and nymphæ, the action of walking is attended with extreme inconvenience. In a large proportion of cases, these local affections are sufficient to produce considerable constitutional excitement; acute pains about the hypogastric and lumbar regions; sickness, vomitings, and other disturbances of the gastric functions. To these formidable symptoms sometimes succeed painful enlargements of the inguinal glands. When the constitutional symptoms run very high, it has been generally observed that not only the mucous membrane of the parts primarily affected is become the subject of active



inflammation ; but that this inflammation extends to the subjacent cellular structure, occasioning in many cases deep-seated ulcerations in it. More frequently, however, the ulcers thus produced are very small, and are generally situated so high up in the vagina that they can with difficulty be detected without the use of a speculum ; when, however, the use of such instrument can scarcely, in the peculiar circumstances, be tolerated by the patient. The degree of violence of the symptoms is necessarily proportional to the constitutional irritability of the patient, to the nature of the tissues and actual condition of the parts affected, and to the good or bad management of the case by the medical practitioner.

The consequences of a gonorrheal affection in women are infinitely less formidable and dangerous than they usually are in men. The urinary passage in the female, with the exception of its mere orifice, being beyond the reach of infection on the first application of the virus, and being seldom known, with the same exception, to become the seat of inflammation by propagation, women are never known to be affected by strictures of the urethra, and very rarely by obstinate retentions of urine ; symptoms which in men are often attended with extreme distress and danger. Retention of urine in the female can always be speedily and effectually relieved by means of the catheter. But women, in common with men, though certainly less frequently, are nevertheless liable to the terrible ophthalmia, which is known sometimes to supervene upon a sudden suppression of a gonorrheal discharge. Women, moreover, are more liable to become the subjects of excoriation of the affected surfaces, and consequently of buboes, and still more of constitutional syphilis, from the more extended exposure in them of the absorbents of the affected parts to the specific virus of the disease. Women are liable to muco-purulent discharges from the vagina, from a variety of causes peculiar to their sex ; causes, in a great number of instances, perfectly remote from impure sexual intercourse. In many such cases it has been found so difficult to establish a satisfactory diagnosis between these discharges and venereal gleets, that the aid of circumstantial evidence has been often sought to balance the doubtful conclusion. See the excellent work of Dr. Swediaur on this subject, vol. i. p. 146. Many of the discharges of females placed by that estimable writer in juxtaposition to venereal gleets, will come more properly to be noticed when we come more particularly to treat of



leucorrhœa, and of the ulcerative diseases of the uterus and vagina. Suffice it for the present to urge upon the practitioner's attention, the importance of the utmost caution in the formation and communication of our prognoses on these subjects; since by the neglect of such caution, we might compromise for ever the domestic happiness of the most virtuous of women.

The treatment of gonorrhœa is attended with much less difficulty in women than in men. It has already been observed, that the female urethra never becomes the seat of gonorrheal inflammation, excepting at its orificial extremity. We are therefore never afraid of occasioning retention of urine by the use of any topicals which we may have to make use of to subdue the inflammation of the affected surfaces.

The first stage of a virulent gonorrhœa should, in most cases, be treated by ample general bleeding, which will often have great effect in subduing the violence of the local inflammation. The patient should be advised, frequently to bathe the surfaces of all the parts within the sinus of the vulva, and as frequently to inject those of the vagina with warm water. Warm water might indeed be applied with great advantage to the same surfaces by means of a warm hip-bath, repeated three or four times a day. This treatment will be found to soothe the irritability, and to moderate the inflammation of the parts, whilst at the same time, it will seldom fail to diminish the acrimony of the morbid virus by dilution. During the intervals between these bathings and ablutions, the parts affected should be treated by such lotions or other forms of topicals as have been approved of by the best surgeons. The several indications of treatment should have for their object the speediest possible subduction of the acute stage of the inflammation; the earliest and the most complete removal, if practicable, of the infecting virus; the dilution and removal also of the morbid secretion, generated by its poisonous influence. To subdue the violence of the first stage of the inflammation, bleeding, as has been already suggested, is a most powerful agent. Amongst the topical applications which have been found most useful towards the attainment of the more local indications, one of the best is a lotion, which was first introduced into practice by Dr. George Fordyce, consisting of between half a grain and a grain of oxymuriate of mercury dissolved in a pint of distilled water. The application of this lotion to the infected parts, and to all the surfaces liable to become implicated by the rapid pro-

pagation of the morbid action, should be made immediately upon the first symptoms of the disease being recognised. Lime-water has sometimes been used with great advantage. At other times an acetate of lead injection, in the proportion of a drachm or a drachm and a half of the salt to a pint of distilled water, with or without the addition of about a drachm of the tincture of opium. Solution of alum, solutions of the sulphates of zinc and of copper, and infusions of galls and of gum kino, with additions of opium and camphor, in various forms, have likewise been much employed with a view to the attainment of the same objects. When the vaginal symptoms have been more than ordinarily violent, soothing injections, made with mucilages and bland vegetables, have sometimes been strongly recommended; and at other times, in cases of equal violence, the yellow or phagedenic wash, made with thirty grains of oxymuriate of mercury and two pints of lime-water, with or without the addition of spirits of wine. In most cases of a gonorrheal affection in the female, when the symptoms run high, the local application of opium is recognised as one of our most efficacious remedies. It is found indeed to be possessed of very great power, both in relieving the irritation and abridging the duration of the complaint.

In order to secure the good effects of lotions and injections as the means of meeting one of the more important indications to be attained by our treatment of gonorrheal affections, viz. that of cutting short, or at least of greatly abridging the duration of the disease, they should be used as early as possible after the application of the morbid virus, and subsequently with great frequency, six or eight times a day, during the first stages of the complaint. In the intervals of injections into the vagina, the same fluids may be kept in constant application to the pudendum by pledgets of lint soaked in them, and well fitted to the surfaces. Small sponges may also be introduced into the vagina in cases of more than usual inflammation of its surfaces. The introduction of such pessaries may be made comparatively easy by compressing them into a small bulk within the grasp of a pair of stone or polypus forceps. In that case the sponge should be charged, AFTER its introduction, with the proper fluid, by means of a toy teapot or a syringe; the patient in the mean time being placed in a recumbent position.

After the subsidence or considerable abatement of the heightened inflammatory action incident to the earlier stages of the

disease, it will often be found convenient to substitute for the above lotions and injections the use of one of the simpler forms of a mercurial ointment. The common mercurial ointment, for example, may be had recourse to with great advantage: or a very good ointment to answer the same indication may be made with the grey oxide of mercury and mutton fat well clarified and free from rancidity. The proportions of these ingredients should be a drachm of the former to six ounces of the latter, with the addition of about three ounces of the finest olive-oil. An excellent ointment for the same purposes may be made with a drachm of the submuriate of mercury and an ounce of the common cerate, incorporated with a small quantity of an aqueous extract of opium. Any of these unguents may be introduced into the vagina, in small portions about the size of a nut, twice a day. Each pellet should be passed up as high as possible, in order to ensure the application of some portion of the remedy to every part of the affected surface. An efficient mode of ensuring this object would be to dress a longish piece of fine sponge with a thick coating of the ointment intended to be used, and to pass it into the vagina, by means of a pair of small polypus forceps. The surfaces of the external genitals should be dressed with the same ointment spread upon lint. The external dressings should be changed twice a day, and the sponge introduced into the vagina at least once.

It is not within the immediate province of the author to go into the controversy respecting the identity of the virus of gonorrhea with that of syphilis. Inasmuch, however, as frequent examples of ulcerations in the throat, and other symptoms of a truly constitutional syphilis, referred by the patients or their friends to antecedent gonorrheal affections, have come within the range of his own professional observation and experience, he feels it his duty to add, more especially for the information of the younger part of the profession, that, in his opinion, an opinion formed after much deliberation, no absolute protection against the supervention of constitutional syphilis can be insured to a subject of venereal gonorrhea without the use of mercurial remedies, exhibited both externally and internally: externally to destroy the local virus, and to effect a radical cure of the local symptoms; and internally to destroy the syphilitic poison conveyed into the mass of blood, as he verily believes it not unfrequently is, by the action of the absorbents of the parts originally



infected, or subsequently ulcerated in the sequel of severe gonorrheal inflammation.

OF VENEREAL WARTS AND FUNGOID EXCRESCENCES OF THE EXTERNAL GENITALS.—Warty excrescences of the external genitals of the female are most frequently ascribed in modern times to syphilitic, or at all events to venereal impurities. To the educated reader it is well known that the syphilis of modern times has no place in the nosology of the ancient physicians of Greece and Rome; however the ancient writers of Greece and Rome, as well as their professional descendants the Arabians, have left us some formidable descriptions of ulcerations and fungoid diseases of the external genitals of both sexes. It hence follows that many of the local affections of the generative organs in modern times, ordinarily ascribed to venereal or perhaps indirectly to syphilitic sources, may nevertheless be often the effects of other causes of irritation. Such indeed we know to be in many cases the absolute fact. The fungoid tumours which usually grow from the external genitals, whether in consequence of venereal impurities or of other causes, are generally simple in their character, and, for the most part, easily curable by topical remedies. At other times, and more especially when they derive their origin from constitutional syphilis, or are complicated with a local affection strictly imputable to the same source, their proper treatment will require, in addition to the most judicious topical management, the exhibition of a full charge of mercury, administered internally.

Of the tumours to be noticed under the present head of subject, there are several distinct varieties. There is first, and one of the principal, THE VERUCA or thymion of Celsus. This is a true warty excrecence, similar to the warts which usually appear on the hand, excepting that they often project from their parent surface by a peduncle of much less diameter than the body of the wart itself. To the smaller ones, this part of the description does not indeed usually apply; inasmuch as when they are of minute size, they are nearly of equal diameter at every part. They are generally disposed on the affected surfaces in groups consisting of one or two large ones, with many smaller ones immediately surrounding them. When large, they become fissured on the top; and then they are apt to bleed more or less profusely.

2. Differing in some degree from the warts just described,



there is a variety of a fungoid excrescence of the same family which is called sycoma or sycosis, because fancied to resemble a fig both in size and figure. When similar in form and general appearance to a mulberry, and when several such tumours are clustered together into groups, the entire excrescence is called a cauliflower, from its obvious resemblance to the vegetable production of that name. Some of the warty excrescences here referred to, have occasionally been seen to infest the anus of children of both sexes. In the greater number therefore of such cases it is obvious, that the occasional cause must have for its source a different acrimony than that of syphilis.

3. Another fungous excrescence from the pudendum and its neighbourhood is the condyloma. This also infests the anus of both sexes; and especially that part of the FEMALE, more frequently than the labia pudendi, the vestibulum, or the orifice of the vagina. This tumour is sometimes hard and harsh to the feel, whilst at other times it is soft and spongy. In all cases it is more or less irregular as to the elevation of its different points of surface. Moreover, tumours of this variety are of very different sizes in different cases. When very large, they are generally found moistened with an oozing of a fetid ichorous humour.

4. Another variety of condylomatous excrescence infesting the same surfaces is one consisting of clusters of bulbous transparent projections, bunched together after the manner of grapes, and connected to the parent surface by a common stem. The proximate cause of warty tumours seems to be an inflammation, in the first instance, of minute portions of the integumental and cellular structures about to become affected by the disease. The parts thus stimulated by the action of inflammation, sustain a gradual extension of the proper substance of the tissues from which they take their origin. Any circumstance or accident competent to produce local irritation, such as acrimonies of any kind, blows, friction, gonorrheal virus, the specific poison of syphilis, any morbid discharges from the uterus, and every description of venereal impurity, may operate as an occasional cause. The indications of treatment must be founded on the special symptoms and presumed source, of the individual case to be treated. Some varieties of these excrescences were removed by the ancients by the actual cautery; others by the potential cautery or escharotics, and others by ligature and abscision. All those methods are still

occasionally employed, with the exception of the actual cautery. The local applications principally employed by modern practitioners to produce an escharotic effect, are the nitrate of silver, the liquid nitrate of mercury, and the oxymuriate of mercury. Some of the simpler forms of warty tumours are said to disappear in consequence of frequent ablution with cold water, or of affusion of them with lime-water mixed with a small proportion of tincture of myrrh. The powder of savin leaves, either by itself or mixed with burnt alum or with one of the oxides of iron, is considered a very efficacious remedy, as well as one of the most frequently-employed applications in modern practice. Dr. Swediaur states that he used, with great success, a composition recommended by Plenck, which he called a liquor ad condylomata, consisting of alcohol and acetic acid, of each half an ounce, together with a drachm each of sulphate of alum, camphor, and oxymuriate of mercury, and half a drachm of carbonate of lead. This composition is to be applied to the warty excrescence, by means of a hair-pencil, two or three times a day. In cases of tumours of this class, known or suspected to have been derived from a syphilitic source, the exhibition of mercury internally is to be considered as an essential item in the treatment. In obstinate cases from that source, mercurial fumigations have been had recourse to with excellent effects. Some varieties of the cauliflower excrescence are conveniently removed by separating their bulbs from each other, and then extirpating them singly by means of a ligature applied to their peduncular shafts or roots. In other cases they have been removed by abscision with the scalpel or scissors. Fungoid tumours of a firm consistence, after having been softened by mercurial ointment or by fomentations with emollient herbs, have been treated by caustics and astringents. In obstinate cases, from whatever source derived, it will be found expedient to have recourse to the internal use of mercury.

OF SORES AND ULCERS OF THE EXTERNAL GENITALS.—Of the several varieties of ulcers by which the external genitals of the female are liable to be affected, in consequence of impure sexual intercourse, the specific sore called chancre is the most common. The poisonous virus productive of this form of ulcer is usually applied to the internal surfaces of the pudendum; viz. to those of the labia majora, the clitoris and of its prepuce, and of the nymphæ; to the orifice of the urethra, to both sides of the vestibulum, to those of the fourchette, and to the parts forming the



orifice of the vagina ; to all the internal surface of the vagina itself, and to the vaginal portion of the uterus. Thus the primary ulcers of syphilis are most frequently affections of the red and moist surfaces of the genitals, which are only covered with epithelium, a pellicular integument of such delicacy and transparency, that it permits the colour of the blood to be seen through it, which of course must peculiarly expose the surfaces which it invests to all the injurious influences incident to the reception and action of morbid poisons. The coarser and laminated epidermis, it is obvious, cannot fail to act as a protection against the reception of the syphilitic virus ; and hence those parts of the body which are covered with that substance are seldom affected by the disease. Practical writers are however agreed, that parts so covered may occasionally become the subjects of it in the event of the poison being allowed to remain in contact with them for a great length of time. Deprived of their proper protection by wounds and abrasions, those parts are as susceptible of the action of morbid poisons as any other ; and they are known to absorb such poisons with great rapidity, while experience too certainly proves that the disease consequent upon an infection so received has generally been one of more than ordinary obstinacy and danger. A country gentleman, during his first visit to the metropolis, became the subject of a small pustular sore of one of the fingers of his right hand. Upon his return to the country, he took the advice of his surgeon, who soon recognised the character of the sore, and lost no time in having recourse to the specific remedy. The unlucky patient was, however, the subject of a syphilitic affection for several years subsequently. A talented general practitioner, intimately known to the author, had the index finger of his right hand infected, by its exposure to the action of a specific virus during an obstetric attendance upon the wife of a recruiting military officer. He became the victim of a syphilitic affection of extreme obstinacy. It is a fact well known to the practitioners in midwifery who are professionally attached to the lying-in establishments of the metropolis, that the midwives under their direction become occasionally the subjects of syphilis in its worst forms. Since the author has had the honour of being physician to the MATERNITY CHARITY for delivering poor married women at their own habitations, not fewer than five cases of this description have occurred in its practice. In two of them, the disease proved fatal. One is at

present under treatment. It is a matter of professional history, that Dr. Macaulay, an eminent obstetric physician in London, during the middle and latter part of the last century, was the subject of a most obstinate syphilitic affection. During the latter years of his life it had the effect of greatly impairing his health, although there is much reason to believe that his case was treated with the utmost skill. He died uncured. Exceedingly susceptible of the action of morbid poisons, as the red surfaces of the external genitals are known to be, it is nevertheless the fact, that the mucous surfaces of the urethra in the male, and of those of both the urethra and the vagina in the female, are less frequently the subjects of ulceration. The surfaces in question are supposed to be, in a great measure, protected from the action of the morbid virus, whilst the virus itself is probably diluted and rendered less acrimonious by the abundance of mucus with which they are lined.

Since pathologists of great accuracy and eminence have determined their attention to the investigation of syphilitic affections, it has been well ascertained that the generative organs are liable to numerous varieties of ulcerations not truly syphilitic, although at the same time attributable to impure sexual intercourse. The diagnosis therefore of ulcers truly syphilitic has been sought with the greatest care, but not as yet with the most absolute success: inasmuch as there are points still wanting to its perfect and universally accepted establishment. Syphilitic ulcers are considered to be best distinguished by the peculiar characters of their edges and base; the former being hard, callous, slightly raised, and surrounded by a rather intense redness of the surface not ulcerated immediately contiguous. The base of a chancreous ulcer presents the appearance of being covered with a coating of a lardaceous greyish mucus. The ulcer itself has a great tendency to spread, and therefore to involve in further destruction the tissues which it invades. But the circumstance which serves peculiarly and most constantly to distinguish the syphilitic ulcer from all others, is a certain thickening and induration of the parts attacked, and of those immediately about to become the subjects of further ulceration, which, almost without exception, attends it. When ulcers of the genital surfaces are the effects of herpes, scurvy, excessive use of mercury, and of other causes not syphilitic, they may generally be distinguished from those truly syphilitic, by their different appearances, by their more



stationary character as to extension, in some cases by their non-extension into deeper structure when they are disposed to spread, by their first appearing or exasperation during the use of mercury, by their disappearance by means simply of cleanliness, and without the assistance of art, and especially without the use of mercury; by their being treated by the use of mercury without success, by their occasionally exquisite sensibility, and by their being accompanied by symptoms peculiarly characteristic of other diseases, whether of the parts themselves, or of other and distant parts of the body.

The syphilitic ulcer usually manifests itself on the second or third day after an impure intercourse; but in some cases the symptoms of the affection have shown themselves within twelve or fifteen hours subsequently, whilst in others no morbid appearance has been observable for many days. In the case of chancres on the red and moist surfaces of the external genitals, the disease usually begins with a slight pruritus of the infected surface. The part about to become the seat of the chancre will be found on examination to be in a state of considerable efflorescence, presenting at or near its centre a minute transparent vesicular pustule. By the friction which is usually applied during the progress of the diseased action, the epithelium of the part becomes ruptured, and the characteristic ulcer is formed.

When a primary syphilitic ulcer is formed on a part of the body covered with dry epidermis, *e. g.* on the thighs or nates, or accidentally on the finger, it is usually observed to assume the form of a round, hard, and duskyish red pustule, which inflames slowly, and which, after ulcerating, discharges a clear ichorous fluid. The sore thus produced, presents an appearance and is attended by symptoms strikingly like those of the inflammation, when purely local, which supervenes upon wounding a finger during dissection. It has been already stated that this variety of syphilitic ulceration is especially obstinate and dangerous.

The diagnosis between syphilitic ulcers and other ulcerous affections of the female genitals, is a subject of extreme importance both to the credit of the medical attendant and to the peace of families. As the vaginal surfaces are subject to inflammatory affections and muco-purulent discharges, produced by other causes than by those of syphilis; so are the red surfaces of the EXTERNAL GENITALS liable to several varieties of ulcerations, perfectly independent in their origin of any application of syphilitic

poison. It is well known that female infants, and children of tender age, the offspring of parents totally free from the contamination of constitutional syphilis, are occasionally the subjects of leucorrhœal and muco-purulent discharges from the vagina very similar in their appearance, and accompanied by similar states of irritation of their secreting surfaces, as are usually observed in cases of virulent gonorrhœa resulting from venereal impurities. It is moreover well known that children similarly situated as to freedom even from all taint of syphilis, are not unfrequently the subjects of ulcerations of their external genitals, which, under other circumstances, might be liable to great suspicion. It happened, during an early period of the author's life, in a Welsh county town, that a child of about eight or nine years of age, of low connexions, and of mendacious habits, was induced to prefer against a respectable minister of religion an accusation of an attempt made by him to violate her person. It was averred on the part of the child's friends, that she became the subject of ulcerations of the pudendum in consequence of the imputed assault. The gentleman was committed to prison, and suffered an ignominious incarceration for many weeks. The grand jury ignored the bill, on the ground that the prisoner had proved himself totally free from the disease which he had been accused of communicating; a conclusion supported by other considerations of a moral and circumstantial nature, which left no doubt on the minds of the inquest of the perfect innocence of the accused. The ulcerations on the child's pudendum were proved not to have been derived from a venereal source.

It has happened to the author, rather recently, to have been consulted in three cases of children, between the ages of three and seven years, for a profuse muco-purulent discharge from the vagina; which, in one of the cases, was accompanied by extensive ulcerations of the vestibulous surfaces, and those of the posterior fourchette of the pudendum. All the children presented the usual indications of scrofulous constitutions; whilst their mother had been for years the subject of a severe tettery eruption. Cases are occasionally presented at hospitals of distressing ulcerations of the pudendal surfaces of female children, which the medical officers of such institutions never think of treating by mercury. Married ladies, affected by non-syphilitic diseases of the genital organs, have been known to communicate similar disorders to their husbands. An interesting case of this description is reported

at considerable length by Swediaur. The obvious inference from all these facts and considerations is, a due appreciation of the duty and necessity of observing the greatest possible caution, both in the formation and communication of our diagnosis on subjects of this kind, involving, as they often do, questions of the most delicate and serious nature.

In deliberating upon the subject of syphilitic ulcers of the pudendal surfaces of the female, the practitioner should take into his consideration their precise nature and stage of progress; the period of their duration; the singleness of their character as primary affections, or their complication with intumescences of glandular or of other structures in the neighbourhood, or with states or symptoms of any other kind, which might indicate the existence of a malady already become constitutional; the remedies, together with the kinds and varieties of forms of remedies employed during any previous treatment; the habits of the patient, her mode of life, diet, regimen, moral character; and the character generally of her physical temperament. Some modern surgeons have maintained that the simple syphilitic ulcer, usually called chancre, may be cured without the use of mercury. Upon the whole, however, the author is of opinion that all ulcerations truly syphilitic, as well as all forms of secondary symptoms incident to the malady, should be treated by mercury; exhibited, however, in such preparations and quantities as the several varieties of the disease might seem to indicate. Some authors have recommended the earliest possible removal of chancres with lunar caustic. This proceeding, however, does not appear to have received the sanction of the majority of well-informed practitioners; whilst, indeed, there are several important objections to be made to its indiscriminate adoption. If, for example, too large a quantity of the salt be applied, it may have the effect of corroding its way too deeply into the subjacent structure of the part, and thereby inflict a wound of a much more dangerous character than that of the chancre itself. There are, moreover, some constitutions so irritable, or otherwise so peculiar, that they cannot bear the action of escharotics on any part of their surfaces. It also sometimes happens that the use of caustics is followed by very painful swellings of the inguinal glands; such swellings, indeed, as have terminated in extensive ulcerations.

One class of practitioners have advised all cases of true syphilis,



whether primary or secondary, to be submitted to one common treatment ; viz. that by a course of mercury internally administered, without regard to any kind, or rather omitting all kinds, of local application. In favour of that summary mode of treatment, it has been alleged that chancres, in common with all other indications of the presence of the disease, are to be considered as so many proofs of the virus having been absorbed into the mass of blood ; and that their evanescence or disappearance in consequence of the internal use of mercury, affords sufficient evidence of a constitutional effect having been produced by the action of the remedy. This theory is now become somewhat antiquated ; and it is at present the general opinion of the best-informed practitioners, that recent syphilitic ulcers are universally the results of a primary infection, and therefore not in fact indications of a constitutional disease. The inference naturally deducible from these premises is, that a disease exclusively local, as a recent chancre, the result of a primary affection, is assumed to be, should be treated at least principally by local applications ; but in the event of the earlier stages of the local complaint having been neglected, and of the disease having been suffered to encroach extensively on the subjacent tissues, that then it should be submitted to the treatment usually considered necessary for cases of an acknowledged constitutional malady. It is believed by some, that sudden intumescences of the inguinal glands are not results, simply and in all cases, of their sympathy with certain states of irritation of chancres, and therefore that it would be much safer, as a general rule, to consider them as proofs of a constitutional infection. The truth of this assumption would seem somewhat doubtful, if we consider that those portions of the glands in question, which in point of locality are the nearest to the ulcerated surfaces, are in most instances exclusively the seats of the intumescence ; whereas in known cases of irritation of the same organs dependent on constitutional syphilis, it has always been observed that all portions of the glands, the superior as well as those which are nearest to the external genitals, are equally parties to the enlargement. It is moreover a fact, that sympathetic buboes seldom or never fail to disperse spontaneously as soon as the irritating cause, the local affection in the neighbourhood, shall have been withdrawn or removed. Whilst disposed to make every concession in favour of the internal use of mercury exclusively, in some doubtful cases of this description, the author

may nevertheless be permitted to express his own preference of a plan of treatment which should combine the moderate exhibition of mercury internally, with an uninterrupted use of topical remedies. Cases innumerable are, indeed, recorded of primary ulcers of the genitals having been speedily as well as permanently removed by topical remedies: whilst it is a matter of daily experience, that the use of such topicals is importantly calculated to prevent the simpler forms of solutions of continuity from rapidly extending and eventually becoming deep-seated and dangerous ulcerations. It is indeed obvious, that no substantial advantage can be lost by the proper use of topical remedies; inasmuch as the practitioner, at the time he is employing those remedies, is left at perfect liberty to have recourse to the internal use of mercury; whilst it may be further added, that by the use of topical remedies, and those more especially of the class of mercurials, the formation of buboes may in many cases be certainly prevented. The author is well aware of the objection, that buboes have often appeared after syphilitic ulcers of the genitals had been apparently perfectly cured by topical applications; as well as of the inference thence deduced, viz., that local applications, instead of preventing such results, should be considered as one of the principal means known in practice, a special example of the abuse of art, no doubt, most calculated to produce them. The answer however to this objection is easy and obvious, viz., that it applies almost exclusively to the abuse of external remedies. Topical remedies may be abused by their being administered for too short a period, by their application being too long delayed, and also by an injudicious choice of irritating materials, or of improper specimens of topical formulæ for their composition. The red oxide of mercury may be mentioned as an excellent application in cases of lardaceous incrustations. The submuriate of mercury prepared by precipitation has also been used with great advantage, especially for cases where the grey and incrustated lining of the ulcer had fallen off, or been removed by the previous use of the red oxide. Either of these preparations should be applied once, at least, in four-and-twenty hours; the part affected, in the mean time, to be covered and protected by a dossil of fine lint. When the vagina is the seat of disease, the grey mercurial ointment, in a quantity equal to about the size of a nutmeg, should be introduced into it morning and evening: and to prevent as much as possible the escape of

the remedy upon its becoming soft from the heat of the passage, a small pessary of sponge or of lint should be passed up, just high enough to ensure its remaining above the os externum. The patient should be advised, during this part of the treatment, to wear napkins or drawers to secure her ordinary linen from stains, which might probably betray the nature of her complaint. A similar form of this remedy, the reader will recollect, has already been recommended, as having been found exceedingly useful in vaginal gonorrhea. This plan of treatment, not now for the first time suggested for the cure of syphilitic ulcers, should be persevered in without interruption, not only until the sores shall have been perfectly healed, but until every vestige of induration of the surrounding parts shall have been entirely removed. It should be considered as an established rule of practice, that a radical cure of a syphilitic ulcer cannot with certainty be reckoned upon as long as there shall remain the least hardness or thickening of the spot which the ulcer had occupied, or of any part of the surface or subjacent tissue immediately surrounding it.

Such are the remedies, whether exclusively or principally topical, which have been sanctioned by experience as the best means for ensuring the speedy relief and ultimately the efficient cure of primary syphilitic sores. But the topical remedies now suggested as the best means of local treatment cannot be depended upon as omnipotent and never-failing remedies in all cases and circumstances of syphilitic ulcers. Were we to take the truth of a plausible doctrine for granted, and at once admit that some of the preparations of mercury are really possessed of a specific power to neutralise the poison of syphilis; yet, inasmuch as it could not be considered in any other light than as a relative power, it is obvious that it should not be supposed final and absolute in all stages and forms of the malady. Who will take upon himself to determine, in every case of a syphilitic ulcer, the date of the absorption of the poison into the mass of blood, first, subsequently to its application to the affected part, and then, subsequently, to the actual establishment of a pustule or ulcer as an effect of such application? Are there no recorded exceptions to the generally acknowledged claims of mercury as a specific power? Have there not been examples of the total absence of all influence of mercury even over primary ulcers of the genitals? It is, moreover, impossible to predicate the time when an ulcer, acting on a peculiar idiosyncrasy, may erode its way through the



mucolardaceous lining of its surface, so as to expose the subjacent tissues to the immediate influence of the infecting poison? Hence, in the opinion of the author, the soundness, and at all events the safety of the doctrine, that the internal administration of mercury, even during the treatment of primary syphilitic ulcers, should on no account be admitted.

When the disease is recent, a small charge of the remedy, continued for about a fortnight after the healing of the primary ulcer, has been considered sufficient to afford a perfect protection against a subsequent reappearance of the disease under any form of a secondary or constitutional syphilis. When, on the contrary, the case is become one of some standing, or the ulcers are known to be the result of a constitutional malady, then it is manifest that a complete course of mercury will be indispensable.

It is a fact long known to the profession, that the genitals of both sexes are liable to become the subjects of ulcerations, exhibiting, in many cases, some points of striking resemblance to those of syphilis; which however prove incurable by mercury, whether externally or internally, or both externally and internally administered. Ulcers of that description are occasionally seen to assume a better aspect for a short time during an exhibition of mercury. They then either remain stationary or they grow rapidly worse, so as to furnish to the practitioner a most distinct indication of his duty either to suspend or totally to abandon the use of mercury. In such puzzling and anomalous cases many and various modes of treatment have been recommended by practical writers. In some of the cases of this kind opium has been used, both internally and externally, with great success. Sometimes the opium has been dissolved in distilled water, and at others and according to circumstances, in alcohol or camphorated spirits of wine: sometimes it has been combined with a solution of the extract of cicuta, and at other times with an aqueous or spirituous preparation of digitalis. In some cases a saturated solution of the muriate of barytes, given in doses of between five and fifteen drops twice a day, gradually increasing the quantity, has been exhibited with great effect. Practitioners have also derived great advantage from the external use of a lotion made with fifteen grains of oxy muriate of mercury dissolved in a pint of lime-water. With similar excellent effects a liniment consisting of four grains of the carbonate of the peroxide of copper, well levigated and diffused

in an ounce of olive oil, and applied, by means of a piece of fine lint charged with it, to the ulcerated part once or twice a day. Mr. Hunter advised phagedenic ulcers and other ill-conditioned sores, become stationary during the use of mercury, to be touched lightly with the nitrate of silver. Dr. Swediaur has however expressed considerable doubt as to the advantage or even safety of that practice.

In the case of ulcers mainly depending for their continuance and exasperation on a cachectic condition of the constitution, tonic remedies are obviously indicated. A salubrious country air, a nourishing and strengthening diet, a moderate use of good wine, gentle exercise in the open air, and tepid sea-baths, should therefore be recommended in such cases as powerful auxiliaries. Notwithstanding and in opposition to the injunctions of some writers, it may be sometimes allowable to touch the surfaces of ulcers of the description adverted to by Mr. Hunter with caustic. Astringent lotions, such as the decoction of tormentilla root, or an infusion of bark in red wine or lime-water, are excellent applications to indolent and ill-conditioned sores. Topical remedies of this class will be best applied in the form of lotions frequently repeated, or by soft poultices, made or softened by admixture with them. Swediaur observes that he found a decoction of green walnut-shells, used both internally and externally, a most successful remedy, after all other means had been used in vain. Vol. i. p. 366. Lotions made with sulphate of zinc, in the proportion of two grains to four ounces of water, have been highly recommended, and in this country especially are very frequently employed. In cases of non-syphilitic ulcerations, but nevertheless the effects of infection from impure sexual intercourse, repeated applications of simple alcohol are often speedily productive of a cure; the ulcers generally disappearing in the course of a few days.

Many excoriations of the female external genitals are the result of irritation from diverse acrimonious discharges from the uterus. The descriptive histories, and the indications of treatment proper for the several varieties of such cases, will be discussed under their respective heads hereafter. It will suffice at present simply to observe, that frequent injections into the vagina, or, if convenient and properly indicated, even into the uterus, together with frequent ablutions of the pudendum with cold or tepid water, with or without the addition of soap, according

to circumstances, will, in the greater number of such cases, materially abate the topical discomforts of the patient.

OF CERTAIN TROUBLESOME AFFECTIONS OF THE URETHRA AND ITS ORIFICE.—The urethra, though not essentially a part of the sexual apparatus of the female, is nevertheless so intimately connected, by the several relations of structure, functions, and position, with those of the genital organs, that it will not be considered foreign to the purpose to notice a few of the more frequent or troublesome disorders to which that important appendage to the bladder is subject. The female urethra opens by a small oval fissure, bounded in many cases by a slight projecting margin of the same form, having its longer diameter vertical, precisely correspondent with the median line of the genital sulcus, and situated at an equal distance from the root of the clitoris and the anterior angle of the orifice of the vagina. It being a frequent duty of a practitioner in midwifery to use the female catheter, it is of the utmost advantage that he should possess a precise knowledge of the relative position of the urethra, and especially that of its orificial extremity. This knowledge should indeed be so accurate as to enable the medical attendant, excepting in cases of an unusual nature, to introduce the catheter without exposing the patient. The female urethra is about an inch and a half in length and of a considerably larger diameter than that of the male. It is imbedded in a thickish investment of vaginal and cellular structure, by the latter of which it is attached to the angle of the pubis. The orifice is therefore situated immediately below and in front of the angle of the pubis. The relative position of the urethra to the anterior parietes of the vagina, the substance of which it traverses is that of a chimney to the wall through which it is made to ascend. The situation of its orifice being accurately known, there are two or three pretty simple rules which, if properly observed, will enable the practitioner, in most cases, to introduce the catheter without much difficulty. The first is, to carry his finger to the lower edge of the symphysis pubis, where probably he would easily find the orifice of the urethra; or, secondly, he might pass his finger into the vagina, and immediately anterior to its orifice he would find the slightly prominent and margined entrance into the urethra. It should here be made the subject of remark, that the prominence just described is not to be felt in all cases and at all periods of life of the female subject. In some young females



it is indeed scarcely to be distinguished ; whilst in women of spare habits and delicate health, and especially in old age, when the tissues of the body suffer relaxation and reduction of bulk, there is not only no prominence at all, but there is often a perceptible depression ; which however will equally decide the locality of the part, and furnish to the practitioner an equally good guide to the introduction of the catheter. The third and best rule is, to feel for the projecting tissue of the clitoris, and thence to carry the finger downwards as if towards the vagina. At the intermediate distance between the clitoris and the entry into the vagina he would encounter the orifice of the urethra. On each side of that orifice, however, it should be intimated to the reader there are occasionally to be met with certain lacunæ or orifices of muciparous ducts, which in some cases are large enough to perplex his attempted operation. At other times the parts will be found disturbed as to their locality, in consequence of difficult labours, or as results of diseased conditions of the tissues themselves. To these causes of displacement might be added several malpositions both of the uterus and of the bladder. In cases where the taxis is not sufficient to enable the practitioner to guide his catheter into the bladder, he might be under the necessity of availing himself for a moment of the use of his eye. The urethra ascends immediately behind the symphysis pubis ; and therefore, the patient being supposed to be lying on her back, the point of the instrument should be elevated as it is progressively introduced. It occasionally happens that the urethra is thrown out of its ordinary direction by reason of its structural connexion with the vagina. In prolapsion of the uterus, for example, when the vagina is necessarily thrown into folds, this must happen ; but it can scarcely take place without more or less affecting the direction of the urethra. To secure in such cases an easy introduction of the catheter, the uterus must be previously reduced. But the simple adjustment of the position of the uterus will sometimes enable the patient to relieve herself, without having recourse to the use of the catheter at all. A once-celebrated lecturer on midwifery at Guy's Hospital was sent for in a great hurry, and at an early hour, to visit a lady residing at a little distance from London, who had been harassed, during the whole of the previous night and part of the preceding day, with a painful retention of urine. When the physician arrived at the lady's residence, he had the mortification to discover that he had not his catheter with him, and he was not a

little perplexed as to what he should do. He was very desirous of escaping the imputation of negligence. He desired his patient to place herself upon her chamber utensil in the usual position for relieving the bladder. He then passed his finger into the vagina, bore the uterus upwards in such a manner as to remove the pressure which it made upon the neck of the bladder, and desired the patient to make the usual effort to relieve herself. This happy expedient succeeded; and the doctor was at once liberated from his perplexity and the lady from the agony of her situation. The latter having been particularly attentive to the means used by her medical attendant to effect his object, and gratified at the facility with which he had accomplished it, determined, if a similar necessity should again occur, to repeat upon herself the same manœuvre; and in fact it so completely succeeded that she found it unnecessary to require the services of her medical attendant again.—Lowder's MS. Lectures. A state of simple irritation of the urinary organs, from whatever cause, without being accompanied by any mechanical obstruction or impediment from malposition either of the bladder itself or of contiguous tissues, has been found sufficient in some women to produce retention of urine. It often occurs to gentlemen practising midwifery to be obliged to have recourse to the use of the catheter after the most easy labours, and to have to repeat the operation daily or more frequently for many weeks subsequently.

Sponging the genital surfaces with hot water for some minutes will sometimes supersede the necessity of recurring to the more artificial means of relief by the catheter.

Among the painful affections of the urethra in women, there is one for which it is sometimes exceedingly difficult to detect a sufficient cause. In some of the cases alluded to, a more than usual elevation of the margin surrounding the orifice of the urethra has been observed; but it has been unaccompanied by any indication of an inflammatory condition. In one instance the part in question was so largely developed that the lateral parietes of the orifice presented very strikingly the appearance of labia majora in miniature. The patient complained of great pain of the part, which she represented as being exasperated during micturition. There was not the smallest change of colour to be observed. Micturition was attended with considerable difficulty; but the introduction of the catheter was effected without being

accompanied by any perceptible impediment to its progress. The subject of the case was a married woman of strictly virtuous habits, who had never been the subject of gonorrhœa or of any other inflammatory affections of the genital surfaces. The only history which she could give of her case was, that it supervened on her last labour, which had been rather a severe one. In other respects her recovery, after her confinement, was rapid and perfect.

The orifice of the urethra is sometimes most painfully obstructed by the presence of fungoid carunculous growths from the mucous membrane of the part. See a very remarkable case of this description recorded at p. 86 et seq. in the 4th Edition. It occurred in the practice of the author, and a cure was eventually obtained by the use of pressure directed upon the surface of the growth. A case which bore a distant analogy to it occurred about twenty years ago in the author's practice at the Sheffield General Infirmary. In the instance alluded to, the vesicular bodies had probably never been threaded together by ligamentous filaments: at all events, they were expelled singly, and at distant intervals, and they were so smooth on their external surface as to afford no proof of their having been connected together or recently adherent even to their proper generative surface. The vesicles in that case were about half an inch in diameter, pretty firm as to texture, white like the whitest membrane upon being voided, never tinged with particles of blood, and but slightly, if in any degree, transparent. They were filled with an aqueous colourless fluid. They were expelled at uncertain intervals of between a fortnight and six weeks, by violent and extremely painful contractions of the bladder of several hours' duration. The subject of the case was a patient of the Infirmary for many months, but received no advantage from any treatment that was adopted for her relief. See a case of Hydatids of the Bladder in a male, by Dr. Alexander Russell, *Medical Observ. and Inquiries*, vol. iii. p. 146; another by Dr. Blackburn, *London Medical Journal*, by Simmons, vol. i. p. 125.

OF INVERSION OF THE FEMALE URETHRA.—A troublesome and not very unfrequent affection of the urethra, in females, is an inversion, together with a prolapsion through its orifice, of its mucous lining. If not the effect of accidents during labour, nor of diseases of the tissues immediately contiguous, it is most commonly the result of a cachectic state of the general health. In



incipient cases it is to be remedied by pressure applied by means of bougies to the interior of the urethra. When it has become chronic and has assumed a severe form, it will seldom yield to any other treatment than that of abscision, either of a part or of the whole of the prolapsing tissue. It has been already stated, that the female urethra is much shorter and wider than that of the male. By reason of such construction, this organ in the female is especially liable to accidents and injuries of various kinds. Without professing to enter at length into the consideration of the diseases of the bladder, the author feels it nevertheless his duty to refer briefly to such of them as might be especially likely to come within the cognizance of the practitioner of midwifery.

Amongst the morbid affections of the bladder here to be enumerated, should be particularly noticed its well-attested liability to be injured by the introduction of foreign bodies into its cavity; which have often been known to produce ulceration, calculous formations within it, over-distension of its parietes, and death. A case is related in *l'Histoire de l'Académie Royale des Sciences*, 1750, p. 50, of a young woman who used the head of a large iron pin to relieve a pruritus of the external genitals which had been extremely troublesome to her. She was in bed during the application of this remedy, and fell asleep whilst performing the operation. The pin escaped into the bladder. She kept the accident a secret for eight months, during which period she was placed under the care of a surgeon of her district. At length a celebrated surgeon of Venice was engaged to attend her, at the expense of a gentleman of fortune who resided in her neighbourhood. The Venetian surgeon soon discovered the nature of the case. The pin was found incrustated with calculous matter, and at one part it felt as if imbedded in a cyst, which the bladder had formed around it. This was considered as calculated to render its extraction with a pair of forceps, whether straight or curved, impossible. The high operation for the stone was therefore performed: but the patient being previously in a very reduced state of health, she did not survive it for more than three days.

A young woman, twenty-six years of age, became the subject of a stone in the bladder, of which the nucleus was an ivory bodkin or needle such as ladies use in making caps and other articles of dress. The history of this ivory needle as given by

the patient herself was, that when she was seven years of age, a fish-bone stuck in her throat : that her brother, who was several years older than her, after other attempts to relieve her, made use of the ivory ; but that he lost his hold of it, and it dropped down her throat, and escaped into her stomach. An operation was performed for its removal by M. Lutapy. The stone weighed nine drachms and forty-two grains. The patient soon after perfectly recovered. *Histoire de l'Académie Royale des Sciences*, 1759, p. 86. For a parallel case, see the *Philosophical Transactions*, 1735. It is quoted in detail in the first edition of this work, vol. i. p. 92. See moreover another case of the same description, Com. by M. Morand in the same vol. of the *Transactions of the Royal Academy* 1735, p. 21 and 22.

Numerous cases are recorded of the facility with which females void, spontaneously and without any assistance of art, large calcareous concretions from the bladder. It has been recorded of one case, which occurred in the practice of Morand, that a calculus was thus expelled which weighed five ounces and two drachms. The ejection was followed by an incurable incontinence of urine. In the large collection of urinary calculi at the *Hôtel Dieu*, amounting to many thousands, it is stated that only two hundred of them were extracted from female subjects. The inconveniences incident to calculous formations in the female bladder are, however, often productive of evils of the last importance. For although such bodies are most frequently thus spontaneously ejected without much difficulty, and without being followed by fatal or even injurious consequences ; nevertheless, in some other cases they are not expelled without most distressing pains, nor without inflicting on the urethral structure injuries which are never repaired. “ *Madlle. de Fiton* had never sought assistance, and it was solely by the efforts of nature that she escaped from an enemy that had inflicted upon her the most cruel torments. During the extreme violence of her pains, she was wont to jump about her room and to bite and tear her assistants like a mad woman. It is impossible to describe the agonising sufferings which she endured on the night during which her calculus, of which the diameter in one direction was two inches and two lines, and in another one inch and one line, was ultimately expelled. Subsequently to that result she obtained immediate relief, as also some good sleep : but, in consequence of having refused surgical aid, she became the subject of new

sufferings. The discharge of the calculus was succeeded by extensive laceration of the parts concerned, and these were followed by such a state of ulceration of the surfaces, as rendered the escape of the contents of the bladder exceedingly painful to her during the remainder of her life. She died in about five years afterwards. *Annales Cliniques de la Société de la Médecine Pratique de Montpellier*, tom. iv. p. 98.

It may be here added, in objection to the practice of surrendering cases of stone in the bladder, even in females, to the unassisted powers of nature, that the retention of calculous bodies within its cavity for many years, has not unfrequently been succeeded by distressing and fatal ulcerations, even of that organ itself. *Ephemerid. Germanic. an. 2, 1671*, p. 269. It is indeed true, that the ordinary operation of cutting for the stone, when performed upon the female, has in too many cases been followed by fistulous openings, between the neck of the bladder and the vagina, which have never healed. It is also too true, when the HIGH operation, either from choice or necessity, has been preferred, that it likewise has been succeeded in numerous instances by inconvenient and even disastrous results. But the practitioners of the nineteenth century have the happiness of contemplating, IN THE BEAUTIFUL DISCOVERY OF LITHOTRITURE, a remedy so easy of application, especially in the female, and so sovereign in its results, that the most timid subjects of the disease WILL IN FUTURE BE LEFT WITHOUT A REASONABLE EXCUSE for the surrender of their happiness and sometimes of their lives to the uncertain issues of lithotomy. For many curious facts on the subject of vesical concretions, and some of considerable practical value, which, however, it would be improper to notice more particularly in this place, the reader at his future leisure or pleasure may consult the following works: *Ephemerid. Germanic. dec. i. p. 269. Borell. 2. observ. 22. The Bartholin. Cent. 1, Hist. 71. Ephemerid. Germanic. an. 2, 1671*, p. 223. *An. 6 et 7, 1675, 1676. An. 8, 1677*, p. 15. *An. 9, 10, 1678-9*, p. 239. *Dec. ii. an. 5*, p. 396. *Dec. ii. an. 7*, p. 127. *Physicalische Belustigungen*, Berlin, p. 543. *Commentarii de Rebus, &c. Lipsiæ*, vol. xxiii. p. 104. *Fabric. Hildan. Observ. Chirurg. Cent. 1, observ. 68. Ruysch. Observ. Chirurg. Cent. observ. 1. Bussière, Phil. Transact. 1700*, abridged, p. 188. *Transactions of the Académie Royale des Sciences of Sweden*, vol. xxxvi. *Lowthorp's Abridgment of the Phil. Transact. vol. iii. p. 152; Idem, vol. iii. p. 157. Martin's Abridgment of*



Phil. Transact. vol. ix. p. 170, and also p. 179. M. le Cat's celebrated paper, accompanied by a plate of lithotomy instruments, Phil. Transact. vol. xvi. p. 97. Phil. Transact. vol. xvii. p. 475. Phil. Transact. vol. lv. p. 128. Act. Phisic. Med. Acad. Natural. Norimberg, tom. i. p. 18. Barth. Act. Medic. pars 5, p. 158. Hafn. 1680. Sparrow's Saviard's Surgery, observ. 72, p. 159. Medic. and Phil. Commentaries, part 3, p. 298.

**PRURITUS OF THE EXTERNAL GENITALS.**—The troublesome irritation now about to be made the subject of a few remarks, is seldom to be identified with any primarily diseased condition of the parts themselves. Inasmuch, however, as it is an actual, and in many cases a most distressing affection of some of the tissues of the external genitals, the author feels that he cannot with propriety omit all consideration of it. One of the more frequent causes of pruritus of the parts in question, is the presence of *ASCARIDES* in the rectum. This is very generally the cause of the symptom in children; as it also is not very unfrequently in grown-up women. In most cases it is presumed to be the result of sympathy between the rectum and the surfaces which are the immediate seat of the pruritus. In some others, practitioners have represented that the surfaces of the vulva and vagina have become themselves proximately the seat of the annoyance, from the vermin having been supposed capable of creeping from the rectum, their natural residence, into the vagina and its vestibule, where it is probable they cannot long maintain even a torpid existence. Whether this latter opinion is well founded, the author has never had any means of determining; nor is he aware of an authentic registry of a single case in confirmation of it. The irritation from the presence of ascarides in the rectum, is usually accompanied by various morbid states of the alvine secretions, and especially by an unusual quantity of mucous secretion. It is indeed well known, that the extraordinary masses of mucus which accumulate in the rectum on these occasions, form a nidus for the geniture and development of ascarides. The exhibition of active purgatives, consisting of calomel, aloes, jalap, and scammony, are the remedies on which we may most depend for the expulsion both of the worms and of the morbid mucus, which is an attendant if not an essential cause of their existence. It has been asserted, that ascarides cannot live in oil. Hence oily enemata have often been administered directly to effect their

destruction, whilst stimulant injections consisting of diverse compositions have been exhibited, to promote, whether living or dead, their eventual expulsion. “Causa sublata, tollitur quoque effectus.”

It has been stated, that the UTERUS has been the seat of ascarides, accompanied by a pruritus of the genitals. From a perusal of some of the cases of this kind, which are recorded in several volumes of the *Ephemerides Germanicarum*, it seems upon the whole doubtful, whether the appearances described were actually or ever had been living entities.

Worms have unquestionably infested THE INTERIOR OF THE BLADDER, and may doubtless have been productive of the symptom which we are now illustrating. An authentic case of the presence of worms in the bladder is quoted by Bartholin. *Acta Medica*, vol. v. p. 83. Hafn. 1680. The author was favoured about fourteen years ago with an opportunity of seeing a case of this description in the practice of his friend Mr. Barnet of Charterhouse-square. The subject of the case is still alive; and the facts of it, extraordinary as they are, well known to Mr. Barnet's more intimate professional friends. For analogous cases, see Corvisart's *Journal de Médecine*, vol. xxiv. p. 410. *Recueil Périodique de la Santé*, vol. vii. p. 211. *Ephemerides Germanicarum*, dec. iii. 1696, p. 343, et dec. iii. 1697-1698, p. 217.

Pressure upon the hemorrhoidal system of veins from costiveness, and fulness of the same vessels, from whatever cause, are frequently accompanied by pruritus of the external genitals. This is probably the reason why women of middle age and upwards, of sedentary and inactive lives, and of full and luxurious habits, are especially subject to pruritus naturalium. The indications of treatment are obviously to diminish the fulness of the venous circulation by free abstraction of blood; to relieve the bowels frequently and effectually by active aperients, and the habitual use of as much personal exercise as can be well borne. The observance of a spare diet, and abstinence from wine and fermented liquors, will complete and confirm the cure.

In cases of pruritus from herpes, the cause may at once be satisfactorily ascertained. Herpes is an eruption of small red vesicles which are evident above the epithelium of the part affected. It both occupies the entire surface of the vulva, and extends into the vagina. It is said never to be attended with diarrhoea. It occurs most frequently during pregnancy. Herpes

of these parts may indeed be said to be almost co-existent with general or local plethora. The principles of treatment are therefore precisely the same as those under the foregoing head. Topical applications with lead have sometimes been recommended to relieve the intense phlogosis of the affected surfaces. All unctuous and camphorated applications are usually forbidden, as having in many cases been observed to aggravate the disease. If this eruption should present itself during pregnancy, our prognosis should be very reserved; as it is seldom practicable to obtain a perfect cure for it till after delivery. The best palliatives will be found in bleeding, the local application of leeches, mild laxatives and enemata, together with the use of cooling lotions frequently repeated.

The external genitals sometimes become the seat of a distressing pruritus from incipient cancer uteri. Pruritus of the surfaces in question is often one of the first indications of the invasion of that terrible malady. When the itching comes on about the forty-fifth or fiftieth year of a woman's age, attended with a stinging darting pain in the uterine region, we may strongly suspect a scirrhus or an incipiently cancerous affection of the uterus to be the primary cause of it. In that event, our prognosis should be most guarded; nor, indeed, should it be made the subject of communication even to the patient's friends, excepting after the most ample opportunity of ascertaining the facts of the case. The general treatment of the primary disease will of course present itself for consideration hereafter. The topical remedies should be local abstraction of blood, with frequent ablutions and injections. The great indication in both respects should be to subduct from the vascular fulness of all the parts likely to become implicated by the disease.\*

Pruritus of the external genitals is said to be a precursor as well as an early accompaniment of nymphomania. That disease is seldom seen in this country. We shall make it the subject of some further consideration, when we come to treat of the functional diseases of the uterine system.

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\* *Lapides in utero.* Obs. 1445. *Virgo sexagenaria major de quodam pondere in regione uteri, non secus ac de doloribus in lumbis et femoribus, multis abhinc annis conquerebatur; cum incessu difficili. Præterea immani pruritu in sinu pudoris, et vicinis partibus vexabatur. Tandem inflammatione pectoris enecatur. Aperto cadavere, inveniebatur in cavo uteri, haud insolitæ molis, lapis durissimus, et albicans superficie inequali; ac drachmas novem pendens. Ex Act. Chirurg. Parisiens.*

*Hist. Anatomico-Medica, tom. 1, L. i., p. 339. Auctore, Josepho Lieutaud.*



OF THE HYMEN AND CARUNCULÆ MYRTIFORMES: THEIR SITUATION, STRUCTURE, AND DISEASES.—The hymen is a membranous or membrano-carneous structure, which is situated at the entrance of the vagina, and serves to form a boundary between that passage and the genital sulcus or vulva. In the virgin state of the subject, it very much narrows the diameter of the orifice into the vagina. Its shape is various and uncertain. In some cases it is more or less perfectly circular, presenting through its centre a round aperture of three or four lines in diameter. At other times, only a part or exclusive portion of the orificial extremity of the vagina, sometimes the superior, at other times the inferior portion of it, is seen to be veiled over with this structure. Another form of the hymen is, when there are two crescentic portions attached to the more carneous structure of the external orifice laterally. When the aperture is of a square or of an angular form, it has had the designation of cardinal's hood hymen. When much puckered, and projecting forward from exuberance of its natural structure, it has been called the cauliflower hymen.

It seems to have been an opinion once pretty prevalently entertained in a neighbouring country, that the hymen is not necessarily a characteristic distinction of any presumed state of parts, and that its absence furnishes no evidence, NOR EVEN A PRESUMPTION, unfavourable to the virgin modesty and purity of any female, whose marriage might be consummated without being accompanied by the usual proof of its being then ruptured. It was an observation of Voltaire, that "modesty is not an attribute of the hymen, but of the heart." In all cases of virgin subjects, it may however be truly said, that nature seems intentionally to have surrounded the orifice into the vagina with an extra quantity of parietal structure: for independently of the slender barrier or partition which is furnished by the hymen, it is strongly arched superiorly by great abundance of vascular and cellular substance, guarded on each side by firm columns of carneous structure, and also by the crura clitoridis; supported below by an extraordinary thickness of cellular and integumental tissue, and even surrounded by the clytorido-perineal muscles. It was maintained by the illustrious Haller, that the hymen is a structure at once distinctive of the human female, and indicative of an original intention of Providence, that there should be connected with it certain sexual duties and privileges, which should exclusively belong to the

female of our species. But this doctrine, if admitted in any degree to be true, must be considered as being greatly exaggerated: for, although in the females of the lower orders of mammalia, an actual hymen, as it is to be seen in the human female, may not be demonstrable, it is nevertheless the fact, that the tissues of the os externum IN THE VIRGIN ANIMAL are thrown into folds exceedingly analogous to those of some varieties of the human hymen, and are so much contracted into puckerings and gatherings, as to secure to all their subjects, including mammiferous females of every genus, nearly an equal protection against premature and forcible invasion of their sexual privileges. Cuvier, *Dict. des Sciences Médicales*, vol. xxiii. p. 98. The most distinctive peculiarity of structure appertaining to the sexual organs of the human female, is to be found in her almost exclusive possession of nymphæ. The exceptions to this rule are so few, that they have been considered very remarkable. The hymen being a boundary structure between the vulva and vagina, is therefore common to both. In or near the centre of the hymen, there is usually an aperture of about half an inch in diameter, which presents considerable varieties of figure, as well as of dimensions, in different individuals. In the average of adult subjects, and the exceptions are very rare, it is large enough to admit the index finger sufficiently high up into the vagina to enable the obstetric practitioner to reach and to ascertain the state of the orifice of the uterus, without rupturing a fibre of the vulvo-vaginal membrane. Cases of breech presentations have occurred where practitioners have considered it useful to introduce the index finger sometimes into the rectum and sometimes into the vagina of the child. The author thinks he can truly state, that in the few cases of the latter procedure which have come within his knowledge, the foetal hymen was never ruptured. Whether the hymen at that early period is quite finished, either as to its form or extent of boundaries, appears upon the whole doubtful. If subject to a similarly imperfect development of finishing structure with the orifice of the foetal uterus, the harmlessness of the above procedure may easily be accounted for.

In the ordinary condition of the external genitals, during any of the more usual positions of the body, the orifice into the vagina is actually valved or closed by the apposition of the lateral surfaces of the part: and therefore in examining for the hymen, in cases of rape, or for purposes of professional opinion or treatment

in many other cases, it will be necessary to separate the labia, and even the thighs, to a considerable distance from each other, before the hymen, IN THE EVENT OF ITS BEING PRESENT, can be distinctly seen. If the subject of such examination has an adequate motive for resisting it, or even for reluctantly consenting to it, she will have it in her power almost entirely to defeat the practitioner's object in instituting it. The author had to perform this duty not many months ago, in the case of a young married woman, who had accused her husband of impotency. The husband denied the charge, and no imperfection of any kind could be detected in the construction of his sexual apparatus. It became an object with the friends of one of the parties to ascertain the truth of the lady's allegation, and she felt herself obliged to submit to professional examination: but under pretence of an extraordinary degree of modesty, which it is probable she did not feel, she submitted to it so awkwardly, and so imperfectly, that the author could not, by any chance or possibility, succeed in obtaining a sight of the hymen, nor of the precise locality where it might and must have been situated, if existing. He soon, however, found what equally decided his opinion; viz. that he could introduce TWO FINGERS TOGETHER into the vagina, with the greatest facility. It is therefore more than probable that the lady was not a virgin. In another case, a very young lady had been induced by her friends to receive the addresses of and eventually to consent to be married to an old gentleman who had resided many years in India. The lady was observed to droop and to become exceedingly depressed in spirits soon after marriage. At length, in consequence of some gross conduct of which her husband had been guilty towards her, in reference to another gentleman, she was induced to make her mother confidentially acquainted with the unhappy subject which had recently preyed on her spirits. She stated, and truly stated, that she was yet a virgin. In the instance of this young lady, though most becomingly retired and modest in her demeanour, no airs of supreme and intangible continence were assumed to defeat the object of the professional inquirer into the facts of her case. She had no motive for deception. Her case was truly as she had represented it. At the period of the investigation she had been married four years; but she was then as much a virgin as on the day of her birth.

The structural material of the hymen seems in some measure to vary in different cases as to the intimate nature of its consti-



tuent tissue. In most foetal subjects it seems to be distinctly membranous, whilst in some others it partakes also partially of a carneous character. See the different preparations on this subject in the obstetric department of the Museum of Anatomy in University College. Hence probably the very different descriptions given of the hymen by different authors. By Soranus it is accordingly described as being membranous; by Avicenna, as venous and ligamentous; by Riolanus, as carneous; by Berengarius, as retiform, consisting of vascular and delicate ligamentous tissue; by Columbus, as a thick substance; and by Spigelius, as partly carneous and partly nervous. De Graaffe, *ad locum*.

In all cases, and of whatever tissue it may principally consist, the hymen is so far vascular in its original structure, that its rupture is inevitably attended with an extravasation of blood. It may indeed be ruptured by other causes than by the first sexual approach; or it may be variously affected, or even absolutely annihilated, by diseases totally unconnected with any passions or peculiar functions of the sex. It is therefore manifest, that any imperfection in its form, or even its entire absence, should not be received as an ABSOLUTE proof of lost or violated virginity: whilst, on the other hand, there is abundance of evidence recorded which goes to prove, that its presence has co-existed with sexual impurities of divers kinds, AND EVEN WITH THE EXISTENCE AND DEVELOPEMENT OF GESTATION ITSELF. The fact of the ORDINARY presence of a hymen in the virgin state of the parts is, in truth, so general and unquestionable, that the knowledge of it, and of its bearings upon the rights and privileges of connubial life, has operated as a sufficient inducement with certain legislators of ancient as well as of modern times, to have enacted very severe and highly penal statutes in protection of the strictest fidelity of married women, and the inviolable purity and virginity of unmarried females. For some of the Jewish enactments on this curious subject, see the 22nd and 24th chapters of Deuteronomy. Some of the laws of Christian Russia, and of other countries where the Greek religion prevails, are scarcely less severe and sanguinary at the present day; whilst the voluptuous Mahometan has not been inattentive to the interests of feminine virtue, nor negligent of its reputed identity with the preservation of an unruptured hymen as a proof of its existence.

When the hymen suffers rupture, its lacerated remains contract towards their bases into small carunculous bodies, which

from their fancied resemblance to leaves of myrtle, have been called *carunculæ myrtiformes*. The caruncles which are situated at the orifice of the vagina, are not however always remains of the hymen. On the contrary, the greater part of the circle at the basis of the hymen, when that structure remains, and the same locality when it has suffered rupture, may occasionally be seen studded with caruncles of different origin ; such extra caruncles in some cases being few and small, but in others large and numerous. In one case, which was that of a young lady of unquestionably good character, who, in consequence of some irregularities imputed to a gay husband, to whom she had been recently married, became the subject of a professional examination of these parts, there presented at the orifice of the vagina on either side, and in the immediate contiguity of the carunculous remains of the hymen, two large multifoliated masses of structure, disposed in parallel layers, in such a manner as scarcely to fail to suggest the idea of a pair of epaulettes.

THE USES OF THE HYMEN, and of its remains or accompaniments the *carunculæ myrtiformes*, are to narrow the capacity of the external orifice, to secure the vagina against the intrusion of nuisances of whatsoever kind, and to guard it no doubt against the sudden, forcible, or premature invasion of the rights of sexual purity and connubial fidelity.

The structures which more especially form or are more immediately contiguous to the *os externum*, are liable to all the diseases of the external genitals of which the author has recently treated. The only subject of further practical inquiry incident to the pathology of the hymen which remains to be considered, is what may be expressed under the designation of malconformation. The hymen, as we have already seen, is usually a thin membranous substance, not requiring any extraordinary force to effect a rupture of its tissue. But there are occasional exceptions to this rule. It sometimes happens, though very rarely, that the ordinary means fail to effect a passage through it. In such cases it has been found to exhibit an unusual degree of firmness and thickness of substance. The remedy is to extend the natural aperture in it, by making one or two incisions from the boundary line of its aperture, directly through its substance towards its periphery or base on either side, or in any other direction as the case may specially indicate. But cases have sometimes occurred of so much narrowness of the orifice of the vagina, subsequently

even to the rupture of the hymen, that connubial intercourse has been attended with extreme difficulty and suffering. The author was once consulted in a case of this kind, in which the confinement of the os externum was so great as to offer the greatest impediment to the consummation of marriage. This was however eventually effected, and it was remarkable that the impediment continued not only after conception but even after the lady had given birth to a child. And it was not until she had borne a second that all the inconvenience ceased. THE HUSBAND EXPERIENCED NEARLY EQUAL DIFFICULTY AFTER HIS WIFE'S RECOVERY with what he had experienced before her confinement, and it was not until after she had borne him a second son that all the inconvenience ceased. Analogous in many points to the above case, is one which was published in 1712, in *l'Histoire de l'Academie des Sciences*, p. 35, by M. Antoine de Mery sur Seine. This case is given at length in the first edition of the present work, vol. i. p. 102.

The absence of a hymen, and an extremely contracted external orifice of the vagina, is a condition, which it is to be presumed may not unfrequently have been mistaken for imperforate hymen. A case of this description came very recently within the author's cognizance. The subject of it was a valued servant of Mrs. Wilson of Gower-street North. She had laboured for many months under symptoms of irritation of the uterus. It became therefore an object to ascertain by the taxis the condition of that organ. That object, however, was defeated by reason of a deficiency of the ordinary aperture into the vagina. The general surfaces of the vulva presented the usual conformation, and there appeared nothing wanting but the usual orifice into the vagina. But it was a part of the history of the case that the patient had menstruated regularly, though sparingly and with difficulty. An outlet from the uterus must therefore have existed: and after trying every appearance of crevice and orifice which might possibly communicate with the vagina a minute aperture was at length discovered. This opening, which was afterwards ascertained to be large enough to admit the interior tube of a double female catheter, was so curiously and so completely filled up by a DELICATE CARUNCULOUS VALVULE, that not a trace of it could be detected by any ordinary examination with the eye. Whether the conformation discovered had been congenital or not, was a problem which no existing circumstances could solve.



The patient had no recollection of ever having been the subject of any diseased condition of the external genitals. The aperture was enlarged by the very gradual introduction of a blunt instrument into it, and afterwards extended by forcibly opening within its parietes the purchase part of a pair of polypus forceps. Sufficient room was thus obtained for the introduction of the finger into the vagina. The vaginal portion of that organ was found greatly elongated, considerably indurated, and exquisitely painful to the touch. The parietes of the new or extended aperture into the vagina healed kindly. See a parallel case recorded by Mauriceau, tom. ii. observ. 583, p. 481.

Another variety of malformation of the hymen, is that which has received the designation of cribriform. As the name implies, the hymen of that variety is perforated by a number of apertures like those of a sieve. A cribriform hymen is also in most cases exceedingly strong, and unrupturable by the common means. When the means alluded to have failed, and no remedy has been sought, it has generally been made a matter of unavoidable inference, that impregnation was impossible. It is, indeed, obvious, that in such cases conception must be rather a rare occurrence. Its possibility, however, has been attested by an ample number of well-attested histories. See cases in illustration reported in the 4th edition, pp. 104, et seq.

Among the morbid effects of the perfect absence of an aperture into the vagina, ONE OF THE PRINCIPAL is the retention of the menses after the accession of the age of puberty, and subsequently to the due establishment of that secretion as a function of the uterus. From the great number of cases of this description which we find recorded, it becomes a matter of inference that this variety of malformation is not one of very rare occurrence. Its existence is seldom however known till the age of puberty. At that period the symptoms incident to the first appearance of the catamenia present themselves. The same symptoms return again and again at intervals of a lunar month, in strict correspondence with the returning nixus of the catamenial function; of which indeed they are the natural accompaniments and results. The menstrual fluid is thus actually secreted month after month; and when secreted, it naturally distils from the uterus into the vagina. But that passage being hermetically sealed at its lower extremity, the secreted fluid is necessarily retained within it, subject only to inspissation, and to

some diminution of its quantity in consequence of the action upon it of the absorbents of the vaginal parietes. By the monthly accession to its volume, the vagina becomes gradually distended, so as eventually to acquire a prodigious size, and to become a mechanical cause of disturbance to the functions of contiguous organs. After a further lapse of time, the catamenial function continuing to be performed with its natural vigour, the secreted fluid finding no room within the vagina, is compelled to accumulate within the neck of the uterus, by which the narrow passage through the cervix becomes distended, and eventually considerably enlarged, in proportion to the increasing pressure applied to it by its periodically accumulating contents. At length the proper cavity of the uterus itself is made available to the constantly increasing demand for space, and becoming ultimately the subject of extreme enlargement, that organ is thrown into a state of strong expellent action. The expellent power, it is well known, is called into active operation at no absolutely certain period, even in cases of gestation; whereas when distended less naturally by other causes, the uterus becomes the subject of the action in question at periods still more uncertain. Hence some of the subjects of such accumulations are seized with violent expellent pains of the uterus, at a comparatively early stage of its enlargement; whilst in the instance of others, the pains do not supervene for many months subsequently to the commencement of its morbid development. Cases of this description present so many circumstances of resemblance to those of true pregnancy, that a correct diagnosis is a matter of no less importance to the credit of the practitioner than it may be to the character of the patient. The abdominal enlargement is remarkably similar to that of natural gravidity. Like it, it occupies the anterior portion of the abdominal cavity. It presents the same character as to resistance and hardness as is given by the pregnant uterus. It is an enlargement which gradually ascends from the pubis upwards in the direction of the *scrobiculus cordis*. It is accompanied by no distinct fluctuation of fluid within the cavity of the abdomen as in ascitic dropsy. On the other hand, no milk would be found secreted in the breasts in a case of this kind, nor any deeper colour of the *areolæ* round the nipples, than might be properly accounted for by the peculiar complexion of the subject. No limbs of a child could be felt through the parietes of the uterus; nor in any posi-

tion of the patient, nor by any mode of external examination instituted by the practitioner could any motion like that of a living foetus be made cognizable. One leading and important fact would naturally present itself to our attention and close investigation; viz. the non-appearance of the catamenial discharge at any period antecedently to the date of the consultation. To that fact it would of course be natural to add any collateral statements of the friends, in evidence of the periodical occurrence of the constitutional symptoms experienced by the patient as already described. The ultimate and only true source of diagnosis would be an examination of the external genitals with the eye, and subsequently of the state of the uterus per vaginam. But the first movement towards the performance of that duty, would at once lead to a full discovery of the nature of the case. The probable absence of communication between the vulva and vagina would be ascertained by the taxis alone; whilst the eye of course could not fail to confirm the report of the other sense. The hymen has generally been found, in such cases, in a state of great tension, like the parietes of a blown bladder. When of membranous tissue, and not extremely thick, the effused catamenial fluid has been seen to shine through it, and to have imparted to it a black reddish colour. In some cases it has been found prodigiously developed, pressing against the labia on each side, and projecting even some inches beyond their level anteriorly. The perineum in the mean time becomes greatly distended, so as to simulate the remarkable fulness which it presents when put upon the stretch during the latter stage of natural parturition. The hymen thus enormously distended, has sometimes been mistaken for the membranes of the ovum; whilst in other cases it has presented, in consequence of long exposure to the action of the air, and to friction from the patient's dress, the characteristic appearance of the browner and rougher surfaces of the body which are naturally covered by the ordinary epidermis. This tumour has occasionally acquired, by gradual accumulation of its distending cause exclusively, an enormous volume, independently of all increase of magnitude, which it cannot fail to receive from the expellent action of the uterus, which nature has not unfrequently instituted as a means of forcibly effecting her own emancipation and relief.

The treatment to be adopted in all the distressing cases of this description is equally simple and obvious, and consists in



making a crucial incision through the distended hymen. Before the operation is undertaken, a proper vessel should be in readiness to receive the contents of the tumour. The accumulated fluid has been sometimes observed to escape with an extraordinary impetus, and to amount in quantity to eight or ten pounds. More frequently, however, its amount has not exceeded four or five pounds. The consistence of the retained secretion, in consequence of the absorption of its more fluid part, is that of thickish grume, or half-coagulated blood, as sometimes observed in the larger veins of a dead body; or, as others have described it, of ordinary treacle. Its colour is that of darkish brown; but probably varying in different cases, as it certainly did considerably vary in the only two examples of cases of this kind which ever came within the cognizance of the author.

Some writers have represented the accumulated mass, immediately upon being set at liberty, as presenting a most foetid odour. In other, and the great majority of cases, their narrators distinctly state that they encountered NO OFFENSIVE SMELL WHATSOEVER. The operation has sometimes been followed by severe constitutional symptoms. In such cases, free venesection and other antiphlogistic indications should be especially had recourse to. One item of treatment should in no case, nor on any account, be omitted; viz. that of well cleansing out the soiled parietes both of the uterus and the vagina, by frequent and forcible injections of warm water. Soaped water in some of the more offensive cases, or medicated solutions or infusions, e.g. dilute solutions of chlorate of lime, will occasionally more effectually meet our indications.

In the greater number of cases the obstructing medium, whether membranous or carneous, being only of moderate thickness, the operation is easy and simple. When presenting, however, a greater thickness of substance, as was the fact in Dr. Cormack's case, as published in the second volume of the Medical Commentaries, edit. 3, p. 187, other methods must be adopted, the use of which will require a precise knowledge of the parts. In that remarkable case, the inferior part of the vagina was plugged up by A SOLID MASS OF FLESH. "It was therefore thought advisable to pass up a small canula enclosing a perforator; which was accordingly done in the direction of the vagina, to THE HEIGHT OF THREE INCHES. Nothing however appeared. The instrument being pushed up an inch further, some thick black

grumous blood issued out. A larger instrument was then introduced, and a discharge to the amount of four or five quarts ensued without any offensive smell. In three weeks the vagina was sufficiently dilated by the use of tents, dossils, etc., and menstruation went on naturally. In a year afterwards the patient was married; and she subsequently became the mother of three fine children.

Another variety of imperforation, is that of two septa of strong carneous tissue stretching across the vagina: see Ruysch, tom. i. obs. 22, a case which of course will require a corresponding operative treatment. For additional examples, and other varieties of closure of the vagina, the following references may be consulted with much interest and profit. *Journal de Médecine*, the first publication of that name, tom. xxxiii. p. 501 et 512, tom. lxiv. p. 252. A case of contracted orifice of the vagina, in consequence of previous use of the forceps. *Lond. Medic. Repository*, vol. i. p. 461. An interesting case, with several references to others, by M. Brady. *Journal de Médecine*, by Corvisart, vol. xiii. p. 29. Smellie's *Midwifery*, Collect. ii. c. 3, 4, 5, 6, with another case which he quotes from the practice of Dr. Macaulay. Corvisart's *Journal*, vol. xviii. p. 189, vol. xx. p. 231. Case of a very small aperture in a child of four years old. Mauriceau, tom. ii. obs. 172. Another of imperforate hymen relieved by an operation, tom. ii. obs. 231. An interesting case of imperforate hymen, by M. Coiffier, of Chatteaudum. *Journal Général de Médecine*, tom. ii. p. 284. Case of pregnancy, and accession of parturition without rupture of the hymen, with strictures on the conduct of the young lady who was the subject of it, by M. Baudelocque. Translation of Baudelocque's *Midwifery*, vol. i. p. 217. A case of retention of the menses, by a double congenital obturation of the vagina, by M. Delisle. *Journal Général de Médecine*, tom. lxvi. p. 94. A case of imperforate hymen, transferred from *L'Histoire de la Société Royale de Médecine* of 1776, into the *London Medical Journal*, by Simmons, vol. iii. p. 159. A case of stricture high up in the vagina, by Aug. G. Richter. *Comment. Societat. Regiæ Scient. Götting.* 1780-1781. A case of obstructed parturition from imperforate hymen, entitled by its contributor, "*De conceptione foeminae cujusdam plebiæ rarissima.*" "It terminated happily," the author states, "both for mother and child, and the husband was afterwards enabled to celebrate his connubial rights within the temple of Hymen."

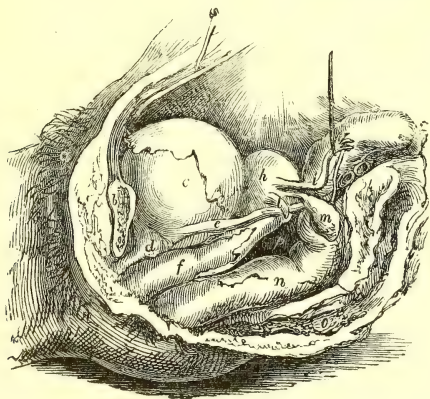
Ephemerid. Germanicarum, dec. iii. p. 146. Another, by D. Joh. de Muralto, dec. ii. an. 3, p. 296. A similar case by Heister. *Commentarii de Rebus in Scient. Natural. et Medic. gestis Lipsiæ*, 1755, vol. vi. p. 680. One also by another contributor to the same work, vol. ii. p. 134. One, by Birnsteil, which was accompanied by a distressing dysury. *Commentarii*, etc. vol. xxxii. p. 707. A case of contracted, and apparently imperforate external orifice of the vagina from coalescence of its lateral parietes, in consequence of a difficult labour. This case supplies a useful illustration of the fatal results incident to the use of specula matricis. *Lowthorp's Abridgment of the Philosophical Transactions*, vol. iii. p. 221. A case of suppression of urine, occasioned by retention of the menses within the vagina, occasioning pressure upon the neck of the bladder and urethra, the consequence of an injury from difficult parturition. *Supplement to Reid and Grange's Abridgment of the Philosophical Transactions*, vol. vi. p. 62. A case of obstructed menstruation from imperforate hymen. *Acta Physica Medica*, etc., Norimburg, 1757, tom. i. p. 343. A similar case. *Saviard's Surgery*, translated by J. Sparrow, p. 7, obs. 4. Another case, with a curious reflection on certain presumed practices of the young person who was the subject of them. *Saviard's Surgery*, p. 72, obs. 32. A case of violent expellent action of the uterus, continuing for eight days. The obstruction was finally relieved by an operation. *Ambrosii Paræi de Hominis Generatura Gynæsiarum*, etc., apud Spachium, Argent. 1597. A case of suppression of urine, in consequence of a swelling which pushed down at the os externum, relieved by a crucial incision. *Medic. Comment.* for 1788, decad. ii. vol. iii. p. 278. Similar cases successfully treated by incision, in *Medic. Comment.* vol. iii. decad. i. pt. 2, p. 194, and vol. ix. p. 280. Similar cases and similarly treated, in *Duncan's Annals of Medicine*, vol. ii. p. 331 and vol. i. lustr. 2, p. 347.



## CHAPTER III.

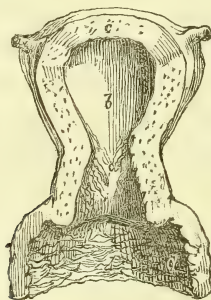
## OF THE STRUCTURE, FUNCTIONS, AND DISEASES, OF THE INTERNAL GENITALS.

VAGINA.—VAGINA UTERI, OSTIUM UTERI.—This is the sexual passage which stretches between the vulva and the orifice of the uterus. It is cylindröid in its figure, cellulo-membranous in its texture, and situated between the bladder and anterior boundaries of the pelvis in front and the rectum behind. The accompanying wood-cut, taken from a dissection made under the superintendence of the author, represents the relations of the vagina and other internal organs. The drawing represents a lateral view of the pelvis, the left lower extremity and os innominatum having been removed; *a.* the mons veneris; *b.* the symphysis pubis; *c.* the bladder; *d.* the urethra; *e.* the ureter; *f.* the vagina; *h.* the uterus; *i.* the left fallopian tube; *l.* the round ligament; *m.* the ovary; *n.* the rectum; *o.* the sacrum; between the uterus and the rectum is seen the posterior chamber *p.* And anterior to the uterus between it and the bladder is the anterior chamber. The irregularly curved line passing over the organs represents the reflection



of the peritoneum, and the relative degree of its descent anteriorly and posteriorly to the uterus is very clearly exhibited.

The vagina is attached to the rectum posteriorly, by a considerable thickness of dense cellular membrane, so as to form with the portion of it so mutually connected, a sort of party wall, common to both passages, which is known by the designation of recto-vaginal septum. The anterior portion of the vaginal parietes, through which the urethra is transmitted, consists likewise of a similarly condensed cellular tissue. Anteriorly therefore, as well as posteriorly, the parietes of the vagina are remarkably firm and substantial. Throughout their whole extent they are admirably susceptible of development, according to the demands for space which are made upon them on the part of the several functions which the organ has to sustain. The internal surface of the vagina is lined with a mucous membrane, which is remarkable for the peculiarity of being much wrinkled or puckered together into shallow irregularly transverse folds, called *rugæ*. These *rugæ* of the vagina are admirably represented in the inferior part of the drawing, marked *d.*, pl. viii. fig. 3 of the Atlas, the same is shown in the wood-cut *d.* Interspersed among these *rugæ*, and immediately



beneath the epithelium of the surface, are situated a great number of minute glands, which serve to secrete several varieties of protective and lubricating fluids, adapted to the special wants and functions of the passage. The particular use of the *rugæ* is to qualify the vagina for being indefinitely developed during parturition, and subsequently, for the purposes of other functions, to enable it to resume its previous more limited capacity. The dimensions of the vaginal passage are unequal at different parts. Anteriorly its length scarcely exceeds four inches when in a state of repose; whereas posteriorly it is at least six inches and a half or seven inches. But from its special structure, consisting as we have seen principally of cellular tissue and distensible mucous

membrane, it is almost indefinitely capable of accommodating its length in common with all its other dimensions to the various demands which are made upon it by its several varieties of functions. The narrowest part of the vaginal tube is its inferior extremity ; where, in its virgin state, it is rendered still more contracted by the presence of the hymen. It is most capacious about its middle, and the part immediately above its middle; whilst at its superior extremity, where it is attached to the vaginal portion of the uterus, it becomes again considerably narrowed. The uses of the vagina are manifold. It forms the passage into and out of the uterus. Even in the infant subject it is sometimes required to become an eliminating passage for the escape of morbid secretions from the uterus. It is in the adult subject the outlet by which the menstrual secretion is discharged from the system agreeably to the laws of that function ; it is, moreover, almost exclusively the medium of communication between the sexes on the part of the female. It is the passage through which the fruit of conception has to be transmitted at the full or at any period of gestation. It is the great excretory tube by which the lochial discharge, and all other fluids, whether healthy or morbid, as well as all false conceptions, hydatids, and other diseased formations of the uterus, and in some rare cases, of the cavity of the abdomen, and of cysts, are severally discharged. It thus becomes the great outlet in the female of all sexual, and of a very great number of morbid impurities. Its blood-vessels, nerves, and lymphatics, will be noticed in connexion with those of the uterus.

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#### OF THE DISEASES OF THE VAGINA.

Introductory to the diseases of the vagina, it has been a common practice with pathologists to enumerate the more important varieties of imperfect development and congenital malformations to which it has been found liable. Of these, one of the most remarkable is that which consists in the entire absence of the vagina. Cases of this defective conformation are not very numerous ; whilst, however, they are sufficiently numerous to establish the fact of their existence. They sometimes present themselves singly, without being complicated with any deficiencies of other organs. In other cases, and indeed most frequently, they are



found combined with the absence of the uterus, or with that of one or more of its appendages. *Journal Général de Médecine*, etc. tom. xliii. p. 54 et 63. *Simmons' Lond. Medical Journal*, vol. ii. p. 178, a case of the absence simply of the vagina which occurred in the practice of M. Meyer, and is extracted by Dr. Simmons from Schmucker's *Vermischte Chirurgische Schriften*. Berlin.

The absence of the vagina is a malformation which occurs most frequently in extreme monstrosities of the sexual organs. In many cases, however, of that description, some indication of its locality is presented; but upon accurate examination, no passage, or only a very small portion of a vaginal passage, is found to exist. In some cases of defective development of the uterus, there has also been the entire absence or a defective development of the vagina. When in those cases there has been present any amount of vaginal passage at all, it has rarely exceeded an inch or an inch and a half in length, and has then terminated in a cul-de-sac. Baudelocque's *Midwifery*, translated by Heath, vol. i. p. 215. *Journal de Médecine*, tom. lxxi. p. 274. *Mémoires de la Société Médicale d'Emulation*, tom. ii. p. 470. *Comment. de Reb. in Scient. et Med.* etc. 1779, tom. xxiii. p. 145. Of this variety of defective development was also the case of the porter's wife, quoted by Morgagni in his work *De Sedibus et Causis Morborum*, epist. xlv. art. xx. et xxi. In that remarkable case, the external parts of generation were very small. The nymphæ and clitoris especially were exceedingly diminutive. There was scarcely to be seen a trace of a hymen. The entry into the vagina was so small as to seem never to have been of sufficient capacity to admit of connubial intercourse; inasmuch as "it certainly did not equal the dimensions of the middle finger in any direction." The breadth of the vagina, when opened and displayed longitudinally, was scarcely more than that of two fingers, and its length not equal to that of four. There were no rugæ upon it. The parietes of the uterus were extremely thin, and the entire organ was so small in all its dimensions, that it appeared not to have acquired any increment of bulk since the birth of its subject. There were no ovaries, a deficiency to which may reasonably be ascribed the imperfect development both of the vagina and of the uterus. Defective development of the vagina has sometimes occurred in persons otherwise well conformed as to their other genital organs. Dr.

Denman quotes a case of so much rigidity and contractedness of the vagina, that its diameter did not exceed six lines, nor its length an inch and a half. The repeated and ineffectual attempts which had been made to accomplish the ultimate act of the marriage contract had occasioned considerable inflammation of the genitals, and excited suspicions for which there was no actual foundation. After removing the inflammation, Dr. Denman had recourse to the use of tents, which he introduced into the vagina, and of which from time to time he gradually increased the size. When by this cautious procedure the part had acquired a certain amount of capacity, the husband was permitted to renew the efforts incident to the peculiar obligations of his case. In a short time afterwards the wife proved pregnant. Her subsequent labour, though slow, was not accompanied by any extraordinary difficulty. Dr. Baillie, *Morbid Anatomy*, p. 431, edit. 5, in noticing the occasional brevity of the vagina, states that he had seen it of not more than half its natural length; and Morgagni observes that, in many of the cases of females whose genitals he had inspected after death, and in whom the catamenial function had never manifested itself, he found the vagina had terminated in a cul-de-sac. *De Sedib. et Caus. Morb.*, epist. xlv. art. xii. The opposite states of an entire absence of the vagina, are, first, an inordinate capacity of it, which in connexion with its causes will present itself for future notice; and, secondly, the occupancy of the space usually allotted to it by two distinct vaginal passages. The latter peculiarity of conformation will be more especially adverted to during the discussion of the subjects of double uteri and supra-fœtation. The treatment proper to be observed in cases of defective development of the vagina must require a very deliberate consideration of the precise nature of the particular case to be treated. The total absence of the passage would of course admit of no remedy, nor would it probably ever require any: inasmuch as in a majority of such cases, the ovaries, or the uterus, or both, will have been also absent or insufficiently developed. When the vagina is preternaturally contracted at its inferior orifice, but sufficiently perforated to admit of the catamenial evacuation, no interference of art can be absolutely necessary until marriage is either negotiated for or contracted. In the event of any unusual conformation of the parts being known to the parents of any young lady who might herself be induced to listen to a proposal of marriage, it would be an act of justice

towards the proposer, that she should submit to a full professional inquiry, and even to personal examination, before the final arrangement was concluded.

In cases simply of an imperforate or cribriform state of the hymen, it has been already seen that the remedy is to be sought in the very simple operation of a crucial incision of that membrane. In cases however of coalescence of the opposite sides of an inferior portion of the vagina from accidents or disease; of which there are numerous recorded examples; the application of the proper remedy, which would also probably have to be sought in a surgical operation, might be attended with more difficulty. Cohesions of these surfaces, in consequence of trifling accidents or of slighter degrees of inflammation, usually admit of being again separated without extraordinary difficulty, and without danger of inflicting any further injuries. When, on the contrary, very extensive obliteration of the passage, accompanied by great loss or destruction of structure from sloughing, has been sustained, surgical operations should be undertaken with great caution; and when undertaken, should be performed with the best skill and the most perfect knowledge of the anatomy of the parts. See an interesting case of impeded menstruation from a stricture high up in the vagina in a young woman of twenty, which it was presumed had been the effect of ulceration of the vagina during or immediately after confluent small-pox when she was thirteen years old. Aug. J. Richter, *Comment. Societat. Reg. Scient. Potting. tom. iii. p. 148.*

In cases of great CONGENITAL BREVITY of the vagina, our art can furnish no remedy; and in the event of such a state of things occurring to a married female, the medical attendant would have to intimate his advice EXCLUSIVELY TO THE HUSBAND. In cases of combination of great narrowness with more than ordinary brevity of the same passage, the proper indication of treatment is that which was adopted by Dr. Denman in the case already alluded to; viz. that of the use of tents made of sponges or other suitable materials. In the event of impediments from transverse septa, or accidental cohesions of the opposite surfaces affecting MIDDLE portions of the vagina, as in that of the double impediment mentioned by Ruysch, vol. ii. obs. xxii., a corresponding treatment will be found necessary. Ruysch's patient was the subject of an unruptured hymen, and in that state of an impeded labour. By means of a grooved director and a pair of scissors,



that great anatomist made an incision through the hymen : but the delivery still not taking place, and the head of the child not coming down low enough to bear upon the external orifice of the vagina, he carried his examination further, and encountered another thick membrane higher up in the passage, which had the effect of completely obstructing it, and of preventing the further descent of the foetal head. This second membrane was also incised, and the patient was soon after delivered of a living and healthy child. She experienced a very speedy and perfect recovery. Ruysch was of opinion that this second membrane was the result of the application of an acrid humour subsequently to conception. A case somewhat similar to that of Ruysch is given in Leroux's *Journal de Médecine*, vol. xxxvii. p. 215, communicated by M. Lemonnier.

Among the obstructions to the due performance of the functions of the vaginal passage is an extreme contractedness of its diameter, independent of any septa, fræna, or immediate connexions of any other kind of the opposite portions of its parietes, or of any known causes applied to it from without, whether from accident or disease. In the greater proportion of such cases the function of procreation has been possessed in its fullest extent ; but that of parturition has been rendered doubtful, and sometimes perilous. Many cases of this description have been reported by obstetric writers ; which however, by reason of the unquestionableness of the fact of their occurrence, it might seem unnecessary more particularly to refer to in this place. The author will therefore now content himself with quoting only one or two examples ; of which the first shall be a case which occurred some years ago in his own practice. Its subject was a lady of thirty-nine years of age, whose spine was considerably distorted by an injury which she accidentally sustained during her infancy. When she had been in her first labour only for two or three hours, she was advised by her monthly nurse, who probably anticipated more than ordinary difficulty, to send for her medical attendant. On the author's arrival, he found the orifice of the uterus very amply dilated, NEARLY OBLITERATED, and the foetal head presenting favourably. In ascertaining these facts, however, he encountered some difficulty in carrying his finger through the middle of the vagina, where he found it contracted into a very narrow diameter, and presenting such a feel as might have been expected if it had been bound by a ligature

coiled round it on the outside. It moreover felt firm, thick, and rigid. The mother of the patient, being in attendance, reported that her daughter had always menstruated regularly and well, and that she had never been the subject of any known disorder of her genital organs. The affected part gave no evidence of its ever having been the subject of cicatrisation. Time and patience, therefore, presented themselves as the principal remedies. The cavity of the pelvis was sufficiently ample. The labour pains became very active in the course even of a few hours, and ultimately exceedingly urgent, accompanied by a tempestuous excitement of the heart and arteries. The patient was bled freely and repeatedly, and the hand was as much used to promote dilatation as was deemed consistent with the soundness and safety of the part to be dilated. She was delivered of a still-born child in about FIFTY HOURS after the commencement of the labour. She recovered slowly but perfectly. She sustained no retention of urine, nor purulent discharges during her convalescence. The loss of an heir to a good property was not sustained without some regret ; but the disappointment was forgotten, and the loss doubly repaired by the subsequent birth of two living children, both sons.

In some cases of contracted vaginæ a sudden development of them has taken place during labour. In a case reported by M. de la Toison in *l'Histoire de l'Acad. Royale des Sciences*, 1748, p. 48, it is stated that a lady who resided at Brest had so narrow a vagina that it could scarcely admit the barrel of a goose's quill ; but that nevertheless she became pregnant, and that at the full period of gestation she was happily delivered of a strong child after only three hours' labour. In some other cases of a similar nature, the development in question has been more gradual, occupying several of the latter weeks or months of gestation. A woman who was married at the age of fifteen had the inferior portion of her vagina so contracted, that it could not admit EVEN THE POINT of the index finger when made use of to ascertain the cause of difficulties encountered by the husband. The taxis gave the practitioner the impression, that about an inch above its orifice it was surrounded by a sphincter muscle of extraordinary power and unyielding rigidity. Notwithstanding the use of sponged tents and bougies for a year and a half, this obstacle proved obstinate and unyielding. At length, however, pregnancy supervened, and at a late period of the SIXTH month

of gestation, the husband was enabled for the first time to advance beyond the barrier which had hitherto impeded his progress. From that time forward, the difficulty gradually abating, the vagina became more and more succulent and developed; and at the full period of gestation, its parietes yielded to the ordinary impulses of parturition as kindly and unresistingly, as if it had never been the subject of any unusual rigidity.

OF FISTULOUS AND OTHER INTERCOMMUNICATIONS BETWEEN THE VAGINA AND ITS IMMEDIATELY ADJOINING ORGANS.—Under this head may be noticed two principal varieties of communications between the vagina and its adjoining passages; viz. congenital imperfections of the structures constituting their common parietes; and, 2dly, such as result from the effects of injuries and diseases.

Congenital intercommunications between the vagina and the bladder are rare occurrences; as are also those more directly situated between the ureters and the vagina. Of each of these forms of malformation, there are, however, some remarkable examples recorded.

When there has existed only an inferior portion of the vagina, the remainder has opened into the rectum, maintaining at the same time its natural connexion with the uterus, and as far as it has existed, with the urethra. "The annals of medicine," observes Murat, *Dictionnaire des Sciences Médicales*, vol. lvi. p. 459, "make mention of many women naturally without a vulva, in whom therefore, as in the common poultry, the vagina has been known to open into the rectum." Louis reports a case of this description in a thesis which was afterwards prosecuted by the authorities of the Sorbonne, as contrary to good manners. *De partium externarum generationi inserventium in mulieribus naturali, vitiosa et morbosa generatione*, theses anatomico-chirurgicæ, Paris, 1735. We also meet with examples of this communication of the vagina with the rectum in the *Memoirs of the Royal Academy of Prussia* for 1774, in the *Journal de Sçavans* for 1777, in the first volume of Barbaut's *Cours d'Accouchemens*, in Richter's *Bibliothèque Chirurgicale*, and in the *Annals of Medicine of Montpellier* for 1804. Many facts prove that this extraordinary conformation has not always operated as an impediment to conception. *Deficiente vagina an possunt per rectum concipere mulieres?* See also a case in the practice of Prof. Rossi, *Dict. des Sciences Médic. Art. IMPUISSANCE*, vol. xxiv. p. 208.



Portal in his *Précis de Chirurgie*, tom. ii. p. 745, states that he knew a young woman who enjoyed the best health whose vulva was perforated by only one small aperture for the discharge of the contents of the bladder. She menstruated by the anus. She became pregnant, and was naturally much disturbed at the prospect of what she had to encounter during her delivery. But an actually existing aperture into the vagina presented itself at the full period of gestation, which becoming gradually more and more developed during her labour, finally admitted of her being happily delivered. She was attended by M. Péan.

Among the malformations of the parts situated at the outlet of the pelvis, must be noticed that of the anus being sometimes imperforate. In a small proportion of such cases the rectum has opened into the vagina. A case of that description is recorded by Degussieu in *l'Histoire de l'Académie des Sciences* for 1719. Its subject, a child of between seven and eight years of age, voided her fæces by the vulva. Several cases of the same kind are referred to by the older writers.

Nature, it would seem, in some of these examples of departure from her ordinary laws of formation, has shown something of a disposition to render the misfortune to the sufferer as light and tolerable as possible. In a case of congenital communication between the rectum and the vagina of a female calf, published in the *Ephemerides Germanicarum*, dec. iii. an. 1699, 1700, p. 360, it is stated by Dr. Hartmann, that the recto-vaginal aperture was bounded by a structure similar in appearance and office to the ordinary sphincter of the anus. The author is in possession of the notes of a case, which, however, from being mislaid he cannot immediately refer to, of an old lady, for whom it is probable a similar provision had been made. She had been the subject of this malformation all her life; but by the constant habit of using an aqueous detergent injection after every occasion of obedience to her natural calls, she found herself competent to keep her person in a state of considerable cleanliness and comfort. After making allusion to a case of a redundant aperture communicating between the perineum and the uterus, published in vol. vii. p. 510 of the *Collect. Académique*, M. Murat, in the article quoted, expresses his obligations to his "FRIEND, M. CHAMPION," for the particulars of a case of sexual malformation, which may probably be a solitary one of its kind in the records of pathology. Its subject was a woman

of Bar le Duc ; the mother of three children, whose births had been attended by no serious accidents. The opening into the vagina was found situated immediately on the verge of the anus. The aperture was in a transverse direction. The space usually occupied by the great sulcus of the vulva, was entirely made up by an unfissured prolongation of the cellulo-integumental tissue which ordinarily cushions the pubes. Considerable apprehensions were entertained lest during the first labour the perineum might suffer laceration. The anticipations in question were, however, happily not confirmed by the event. The birth was actually an easy one.

Of intercommunications between the several pelvic passages consequent upon INJURIES AND DISEASES, the recorded examples are almost innumerable. Those from mechanical injuries, incomparably the most frequent, and for the most part the results of contusion from severe and instrumental labours, have been such as have usually implicated the urethra and the neck of the bladder. In the absence of the most suitable and best proportioned relations between the bulk of the foetal head and the capacity of the mother's pelvis, such contusions are perhaps sometimes unavoidable. It is however to be feared that unnecessary interferences of art are very frequently chargeable with these formidable results. The neck of the bladder and the urethra are especially exposed to pressure during impaction, or even long-continued arrest of the child's head in a confined pelvis. Such pressure has the effect of suspending the circulation, and ultimately of devitalising the tissue of the part more immediately affected by it. A fatal inflammation supervenes, which terminates in a solution of continuity ; and thus are eventually established the intercommunications to which our present remarks apply, and which with very rare exceptions prove distressingly loathsome and incurable. Attempts have been sometimes instituted by ingenious men to repair these injuries by ligatures and other contrivances. From the constant exposure of the injured surfaces to the irritating action of the urine upon them, their subsequent cohesion is rendered next to impossible : and hence the almost universal fact, that they never do heal, and that the bladder never recovers its perfect continency.

Breaches of the same kind through the recto-vaginal septum, which indeed are of much less frequent occurrence than those of the neck of the bladder and the urethra, are also happily in many

cases less miserably constant and durable in their results. The author has known several examples of solutions of continuity of the recto-vaginal septum consequent upon severe or mismanaged labours, which were subsequently perfectly made up by contractions and cicatrizations. In one case of this kind, an extensive laceration of the vaginal part of the septum was inflicted by an indexterous use of the forceps. A purulent discharge of moderate amount, accompanied by little or no sympathetic fever, was the only consequence. In another case, the obstetric scissors, employed WITHOUT NECESSITY, to open a child's head, slipped slantingly along the foetal skull, and found its way through the recto-vaginal septum into the rectum. The only consequence was the discharge of small quantities of fæces by the vulva for three or four days. The secret was never known, excepting to the operator and the present reporter of the case, whom in his first alarm he had consulted on the subject. Another gentleman not much accustomed to perform obstetric operations, had the misfortune of determining the propellent force which he applied to his perforator in the opposite direction; and the point of it was driven with no feeble thrust into the bladder. That wound never healed. The unfortunate patient however survived, and is alive to this day to rue herself the victim of a presumptuous and untaught pretender to a knowledge of the art of midwifery. Her medical attendant had never received instructions in any obstetric school. See additional cases in the 4to edition.

For examples of injuries inflicted on the pelvic viscera and external genitals by severe labours, the reader may advantageously consult the following references. *Journal de Médecine*, etc. tom. iii. p. 551. *London Medical Journal*, by Simmons, vol. i. p. 335. *Lowthorp's Abridgment of the Transact. of the Roy. Soc.* vol. iii. p. 321. *Supplement to Read and Grange's Abridgment*, vol. vi. p. 62. *Saviard's Surgery*, two cases, pp. 7 and 72.

The soundness of the principle of keeping a catheter constantly in the bladder in cases of communication between the vagina and bladder from sloughing or other causes has been long acknowledged, and in some few cases its application has been attended with a successful result. The only objection to it in practice is the extreme irritability of the bladder; by reason of which few patients have been able to tolerate the retention of a catheter within its cavity for a sufficient length of time to comply effectually with the principle of the indication.



Various contrivances have been suggested to plug up the artificial passage between the bladder and vagina; such as globular bodies and pessaries of various forms and materials, sometimes hollowed out, and at other times solid: some smooth, others resisting, or elastic, yielding, mouldable, absorbent, etc.: but the author does not recollect a single example of the means in question having effected a permanent cure, WHERE THE INTERMEDIATE APERTURE HAD BEEN THE RESULT OF SLOUGHING.

The practice of bringing the edges of such breaches of continuity together, and connecting them by means of ligatures, has in like manner very seldom been attended with success. The author does not wish to attach to either of these modes the discredit of having universally failed. But he is very much disposed to believe that in by far the greater number of cases in which they are represented to have been successfully employed, either the injuries for which they were used were trifling as to the magnitude of the original wound, or else the wound had been the effect of penetration by an edged or angular portion of a foetal bone, rather than of long-continued pressure and contusion; or, finally, the incontinence might have been the result simply of reduced power, or possibly of reduced substance of the sphincter of the bladder, rather than that of a communication between the bladder and the vagina in consequence of any variety of solution of continuity. A well-adapted globular body of proper size to admit a suitable part of its convex surface to be accurately adjusted to the boundaries of the aperture; capable also of some modification of its figure for the greater convenience of introduction and adjustment; readily chargeable with air for the purpose of distension, but nevertheless admitting of being made perfectly air-tight, and so smooth on every part of its surface as to be easily tolerated when applied to the parts intended EVEN IN THEIR MOST TENDER STATE: might in many, perhaps in the majority of cases of intercommunications between the bladder and the vagina, be safely recommended, as a means of relief or mitigation of the distressing evils incident to the grievous calamity in question. But no mechanical contrivance, nor any mode of management that has hitherto been proposed or adopted, CAN BE RELIED UPON AS AN ABSOLUTE REMEDY.

## OF LACERATIONS OF THE VAGINA.

Lacerations of the vagina form a part of the general subject of laceration of the uterus during parturition; inasmuch as lacerations of the uterus are in many cases continuous into the parietes of the vagina. It has been indeed supposed that cases of rupture of the vagina have often been mistaken for lacerations of the uterus. See an extraordinary case of lacerated vagina at the full period of gestation, by William Goldson, 1787; whilst, perhaps with equal neglect of proper evidence, it has been too inconsiderately maintained that ruptures of the vagina are incomparably less dangerous than those of the uterus. Ruptures of both these organs will necessarily occupy our attention hereafter, when we shall have to treat of the several varieties of complicated labour.

Certain lesions of the vaginal parietes, entitled to the designation of ruptures, have taken place under other and very different circumstances from those of parturition. A case has been reported by Diemerbroeck, of a rupture of the vagina during sexual intercourse, which terminated in fatal hæmorrhage. A beautiful mare, the property of a friend of the author, was taken from her stall by some brutal grooms, and placed in a situation to be forcibly covered by a stallion, at a time when she was not the subject of the œstrum. The consequence was the death of the animal from intense inflammation of the vagina. The situation of the vagina is such as not often to expose it to wounds and lacerations from without. M. Murat, in an article already quoted, cites an example of that kind. "A woman of the parish of St. Merville in going to milk her cows wishing to avoid the trouble of opening and shutting a little gate which was in her road, was in the habit of going over it. But the top of it was finished off with pointed ribs of paling. Her foot one day slipping, she came down in such a manner as to be received by one of these vertical ribs of paling, and it penetrated into the vagina to the depth of two or three inches, pushing at the same time before it the woman's chemise and petticoat. A slight hæmorrhage occurred at the time of the accident. The vagina was however only excoriated. The labia majora were no more than contused. The woman speedily recovered." De la Motte, *Traité Complet de Chirurgie*, tom. ii. p. 136. Peruse a

case of extirpation of a polypous excrescence from the os uteri, consequent as was supposed upon the accidental entry into the vagina of one of the feet of a three-legged stool. *Medic. and Phil. Commentaries*, vol. iv. p. 228.

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#### OF INFLAMMATION OF THE VAGINA.

The vagina is liable to divers varieties of inflammation. We have already had occasion to speak of some of its inflammations in connexion with certain diseased states of the external genitals. There still remain to be considered some other inflammatory conditions of it, which it is subject to in common with the uterus.

The phlegmasiæ of the vagina are sometimes acute and sometimes chronic, according to the character and specific influences of their several causes. In many of the more characteristic varieties of inflammation of the vagina, the muciparous glands, which are interspersed throughout its substance and immediately beneath its mucous lining, appear to be the proximate seat of the diseased action. A part of the structure however, scarcely less implicated than its glandular apparatus in the more acute forms of inflammation of the vagina, is its vascular tissue; which, by reason of the exquisite delicacy of its epithelium, is obviously much exposed to the influence of whatever causes of irritation are accessible to it. Inflammation of the vagina usually commences with a slight rigor, accompanied by a sense of coldness of the loins and thighs, and especially of the pudendal surfaces. This is followed by an indistinct perception of heat, as well as of some pain of the parts about to become the seat of the phlogosis. In the progressive development of the disease, the parietes both of the vulva and of the vagina become intensely painful and swollen, and the mucous membrane, lining or that constituting their internal surface, acquires a bright-red colour. The patient then begins to experience a difficulty in voiding the contents of her bladder, and in some cases becomes the subject of constipation. The action of walking is attended with so much pain and inconvenience as frequently to become impracticable. There is generally a sero-sanguinolent discharge from the vaginal passage, which is exceedingly offensive in its odour, and very irritating to the surfaces with which it comes in contact. The parts themselves become eventually the seat of intense pain. The accom-



panying fever is usually of a character more insidious than that which accompanies inflammation of the uterus. The rigor introductory of the disease is also of a feebler character ; rather presenting a succession of chilly sensations of apparently inconsiderable importance, than a strong shivering of great severity and duration, the old well-known and universally recognised harbinger of a dangerous malady. The pulse rarely acquires an elevated tone, either as to its strength or frequency ; the latter scarcely ever exceeding a hundred and twenty strokes in the minute. The temperature of the body seldom rises to the degree of heat usually encountered in cases of ardent fever. The prognosis in this disease will be found essentially to depend upon the greater or less tendency of its cause to compromise the texture of the parts affected. Hence severe contusions sustained during violent and long-continued labours are followed by inflammations of the very worst character. Inflammation of the vagina is indeed subject to all the terminations of inflammatory action common to the greater number of other tissues of the living body, viz. resolution, suppuration, and mortification. The object of our first practical indication should of course be that of resolution ; and no assiduity of attention nor vigorousness of treatment should be wanting to ensure its attainment. The termination exclusively by suppuration occurs perhaps less frequently in cases of inflammation of the vagina, than in that of most other structures : or it might probably be more correctly stated, that inflammation of the vagina is less laudably purulent and sanatory than that of the uterus and many other organs of the body. But even when this more decided process is instituted its subject tissue is of so slender a fabric as easily to admit of extensively dangerous ulcerations and destructive solutions of continuity. It seems doubtful, however, whether the most frequent termination of acute inflammation of the vagina, is not also the most malignant ; or at least a mixture of its most malignant variety, viz. that by mortification, with the results of feeble and imperfect efforts of the suppurative process ; their combined action becoming eventually productive of that deplorable destruction and death of parts which is usually called sloughing. Such unhappily, in too many cases, is the result of the inflammations consequent upon severe labours, and upon the use of instruments prematurely, too tardily, or unskilfully employed, to assist the function of parturition.

The treatment of inflammation of the vagina is to be conducted on the same principles as that of the uterus. Less prominently decided in its character, more insidious in its approach, and apparently requiring more time to accumulate its means of mischievous activity, the inflammation of the vagina requires on the part of the practitioner, more closeness of observation, a greater constancy of vigilance, a more deliberate comparison and appreciation of symptoms, and if possible, more soundness of judgment for its skilful treatment, than even that of the uterus. The most important practical point in its management consists in the early detection of the symptoms which are usually premonitory of its approach, and which in fact never fail to precede its actual invasion. The knowledge of its exposure to long-continued pressure, especially if contusion is supposed to have been sustained, should never be neglected in the calculation of a possible and even probable accession of inflammation. The extreme tenderness of the parts themselves, and the creeping chills already adverted to, not unfrequently accompanied by a degree of numbness of the hips and loins, and also of the upper part of the thighs and the surfaces about the pudendum, should be considered as circumstances full of import, and deserving of the earliest and most anxious consideration of the medical attendant. A pulse of ninety or upwards on the day subsequently to a severe labour, should be estimated as an element of no little consequence in the formation of a competent diagnosis. There is always an irrepressible activity in the state of the pulse in such cases, without at the same time its being accompanied by any extraordinary development either of strength or of frequency. It is indeed for the most part a pulse which by many people might be deemed rather a languid one, and such at all events as might be considered not to require nor even to admit of venesection. In the circumstances stated, however, the practitioner should be on his guard when he encounters a pulse of ninety or upwards; and in an immense majority of such cases he will consult the best interests of his patient, by abstracting from her, even prospectively, and without waiting for the onset of the threatened attack, between twenty and five-and-twenty ounces of blood. In the management of inflammation of the vagina and its adjoining genital surfaces, there is one practical advantage which cannot so conveniently be made available for the subduction of inflammation of the uterus: viz. the perfect accessibleness of the surfaces in

question to the operation of leeches. The utility both of general and local bleeding in cases of wounds and bruises of limbs, and of all other external parts of the body, is universally known and acknowledged; and the propriety of such practice, even as a means of prevention, and not unfrequently indeed as a measure simply of precaution, is equally acknowledged. But unhappily some of the most mischievous doctrines of the older schools are observed, even now, to hold sway in the usages and decisions of the parturient chamber. It is a vulgar prejudice, and an error often full of danger, that a puerperal woman must necessarily be the subject of extraordinary delicacy and debility; and that the bruising and abraded surfaces consequent on the severities of laborious or instrumental parturition, are not to be treated on the same principles and with the same vigour as similar injuries of other parts of the body. The application of from ten to twenty leeches to the genital surfaces, in cases of even apprehended danger from acute inflammation in the circumstances here referred to, ought never to be liable to the reproach of unnecessary vigour of treatment. No female of adult age, not previously the subject of extraordinary marasmus, or of any dangerous malady, can be seriously and permanently injured by the loss of any quantity of blood which the above number of leeches could abstract from the vaginal and uterine circulations, during the presence or during an immediately anticipated development of active inflammation of the affected tissues.

The next item of treatment most necessary to attend to, and most assiduously to be put in practice, is the employment of fomentations to the vulva. Fomentations will be attended by two importantly good effects: they will first promote a free discharge of blood from the leech bites, an evacuation which should indeed be promoted and kept up for many hours; and subsequently they will greatly soothe the morbid sensibility of the phlogosed and tender surfaces implicated in the diseased action. There is another local application which might most essentially serve the interests of a case of actual or strongly apprehended inflammation of the vagina which is fully entitled to notice, and which will seldom disappoint any expectation which the practitioner may anticipate from its use. It consists in charging the entire vagina, or as much of it as may be practicable, with a poultice made of the finest bread crumb and a doubly-diluted solution of acetate of lead. The consistence of



this pultaceous charge should be that of sufficient softness to admit of its being injected into the passage by a large and powerful syringe. Its retention should be ensured by means of napkins dexterously applied to the vulva; and it should be removed and renewed every five or six hours.

It will be considered unnecessary in this place to detail the more ordinary indications of treatment in cases of acute inflammation of the vagina.

The causes of inflammation of the vagina, derived from chemical sources, are fortunately few and comparatively unknown as to the fact and mode of their application. There are, however, recorded some one or two cases of fatal inflammation and destruction of the tissues of the vagina by felonious exposure of it to the action of poisonous chemicals. A very interesting case of a murderous act of this description is recorded in the third volume, p. 178, of the Transactions of the Royal Society of Copenhagen, communicated by one of its members, C. M. Mangor, Doctor of Philosophy and Medicine, entitled "THE HISTORY OF A WOMAN POISONED BY A SINGULAR METHOD." This method consisted in mixing the powder of white arsenic with the farina of ground corn, and throwing it up into the vagina of the intended victim. The case is given at length in the 4th edition. Another extraordinary case of poisoning by the same clandestine and cruel method is recorded in a work entitled *Clinique Chirurgicale*, by N. Ansiaux; *Journal Complémentaire du Dict. des Sciences Médic.* tom. i. p. 158.

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#### OF CHRONIC INFLAMMATION OF THE VAGINA.

Chronic inflammation of the vagina may be the effect of several varieties of causes, of which some may be deemed constitutional, and others local and accidental. The virulent inflammation consequent upon the application of gonorrhœal and other sexual poisons, is an effect, for example, of the latter class of causes. Although the inflammation from the application of the gonorrhœal poison is generally in the first instance attended by severe and acute symptoms, it nevertheless rarely produces a disease of a peculiarly dangerous or fatal character. Its ordinary history is that of a gradual change of character from a very painful and acute form, which is often attended by no inconsiderable consti-

tutional symptoms, to that of chronic gleet; a variety essentially of the same disease which is often annoying enough on account of its tediousness and length of duration, but which is scarcely ever known to involve either life or tissues in any serious jeopardy.

Inflammation of the vaginal surfaces is, on different occasions, both a cause and an effect of diseased excrescent growths from its mucous membrane, as well as of ulcerations of various specific forms and characters of the same tissue. Constitutional acrimonies incident to the presence of certain diseases, such as those of gout, strumous affections, etc., are productive of sub-inflammatory conditions, which are only capable of being remedied or even substantially relieved, by a successful treatment of the original and constitutional malady. That form of mild inflammation which usually attends, and is probably in some degree the cause of, the discharge from the vaginal surfaces called *fluor-albus*, is in most cases the result of a certain delicate state of the constitution, inseparable perhaps from certain conditions of the subjects most liable to it.

It would exceed the limits of the present article to enter with any degree of minuteness into an examination of the various forms of ulcerations to which the mucous lining of the vaginal surfaces is liable. In some cases they present themselves in the form of simple abrasions of the epithelium of the part affected, without presenting much the appearance of ulcerations. In some other cases the ulcers are very minute in extent, and also very superficial as to their encroachment into the substance of the tissue which they invade; exhibiting themselves rather as specimens of an inconsiderable cutaneous eruption than true ulceration. This is especially the character of the petty but troublesome and obstinate ulcerations which constitute what is called *herpes of the vagina*.

The more serious inflammation attendant upon and really constituting the essence of one of the most painful diseases incident to the peculiar organs of the female, viz. that of cancer, will be considered at length, when that painfully interesting malady shall come under our more general consideration. Some of the most loathsome ulcerations and extensive intercommunications amongst the several pelvic passages, will be found to depend upon the destruction of texture incident to the unremitting and never-ceasing encroachments of that formidable disease.

## OF POLYPOUS TUMOURS OF THE VAGINA.

The vagina is the residence much more frequently than it is itself the subject of polypous tumours. Those parasite growths are indeed seldom productions of the vaginal surfaces themselves. For one example of tumours of this class having its origin from any part of the vaginal surface, there are at least ten which are indebted for their source, either to the neck or to the interior of the body of the uterus. Examples, however, are not wanting of very large tumours of a polypoid character being produced by diseased actions or conditions of the vaginal surfaces themselves. Baudier has favoured the public with a description of a tumour, which weighed ten pounds and a half; and M. Dupuytren presented to the Society of the Faculty of Medicine of Paris, two specimens of enormous growths of this kind, remarkable for the fibrous character of their texture. *Bulletins de la Faculté de Médecine de Paris*, 1820, No. 14, p. 135; *Journal gen. de Méd.* tom. 72, p. 115.

Polypi of the vagina are attended generally by symptoms similar to those usually present in cases of uterine polypi. The principal difference is, which indeed is one of great practical importance, that they are attended by less frequent and less profuse discharges of blood. In cases of vaginal polypi occurring in virgin subjects, and acquiring a considerable bulk before they begin to cause pressure upon the inferior parts of the vagina, it sometimes happens that they extend principally in their dimensions upwards, so as to displace and disturb the functions of the uterus, and those of the other organs situated within and in the neighbourhood of the superior pelvis. In some of these cases the encroachments in question have been made even upon the hypogastric region, so as to be distinctly recognised through the abdominal parietes. When a polypoid tumour of this description is discovered during pregnancy, it will become an important duty of the medical attendant to deliberate and perchance to consult one of his most experienced friends on the practical question as to the expediency of an operation before the accession of the expected confinement.

It is considered an essential part of the definition of a polypous tumour, that its principal trunk or body shall greatly exceed in dimensions its peduncle or neck. M. Le Blanc, *Précis d'Opération de Chirurgie*, t. 1, p. 345. The author once pos-



sessed an interesting specimen of a tumour, which had derived its origin from a portion of the vaginal surface, the breadth or transverse dimensions of which were everywhere equal. The extent of connexion with the parent surface measured about three inches; but from the peculiar delicacy of the intermediate vascular connexion between the morbid growth and that surface, the removal of the tumour, which was of the breadth already stated and of the length of between ten and eleven inches, was effected with great facility, and without being accompanied by the loss of more than half an ounce of blood.

Judging from comparative results, it seems upon the whole more than probable, that polypi which take their origin from the vagina are more dangerous and more frequently fatal than uterine polypi. *Journal de Méd. Chirurg. &c.* tom. 63. 372. *Ephemerid. Germanic.* dec. i. an. 2, p. 199. *Lond. Medic. and Physic. Journal*, vol. 26, p. 38. For an account of a small polypus originating from the orifice of the vagina, and suspended by a peduncle of half a yard long, see *Smellie's Midwifery*, vol. 2, *Collect.* 9. No. 1. Case 1; *Manget. Biblioth. Medico-pract.* tom. 3. p. 609.

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#### OTHER VARIETIES OF VAGINAL TUMOURS.

The vagina is indeed at different times the seat of great varieties of tumours: a circumstance which must make it the obvious duty of medical men to pay much practical attention to their pathological histories, and the characteristic differences severally presented by them. The different epithets by which such tumours have been most commonly distinguished, and which have generally corresponded with their structural characters, are those of fibrous, scirrhus, cartilaginous, sarcomatous, adipose, cerebriform, encysted, etc. Tumours have occasionally been encountered in the vagina which have contained serous fluids, gaseous fluids, together with purulent matter, gelatinous semi-fluids, calculous bodies, and such as have arisen from the enlargements and indurations of the structure of the vaginal parietes themselves. Some of the accumulations of imperfectly organised deposits, producing encroachments upon the native structures, and upon the space naturally allotted to them within the cavity of the pelvis, have occasionally been embedded within cysts of their own production in the cellular texture of the

parietes of the vagina. Scirrhus tumours very rarely present themselves in the vagina when the uterus is totally free from a taint of the same disease. For that reason, as well as on account of their intimate and inseparable connexion with the original structure from which they are propagated, it will be scarcely ever practicable to effect their removal by an operation. Encysted tumours embedded in the substance of the parietes of the vagina, may on the other hand generally admit of relief by a skilful surgical operation. The principal difficulty of the subject is to arrive at a perfectly satisfactory diagnosis. A most interesting case of an encysted tumour of the vagina successfully treated is given by M. Pelletan in his *Clinique Chirurgicale*, tom. i. p. 230. "A woman of the age of twenty-four presented herself at the Hôtel-Dieu, to be treated for a tumour which greatly incommoded her, and which, by encroaching painfully both upon the rectum and the vagina, obliged her to walk with her thighs separated, and greatly inconvenienced her in her ordinary movements. This tumour occupied the left side of the vagina posteriorly, and was covered by its mucous membrane. It was of a globular form, and of about the size of a pullet's egg. Coughing seemed to increase its volume, and had the effect of pushing it towards the orifice of the vagina; where also it equally presented itself after the patient had been sitting for a long time. It was easily reducible to its proper place in the vagina. The tumour itself was not painful; but it impeded the escape both of the urine and the fæces. Several gentlemen of the profession considered it a case of hernia; led probably to that opinion by the softness of its texture and the facility with which it could be made to change its situation, which however it did not admit of beyond the reach of the taxis. But M. Pelletan was of a different opinion; and acting on his own conviction of its character made an incision of about two inches in length into the body of the tumour and gave outlet to half a glassful of puriform matter, which was of a greyish white colour. There was subsequently for several days an abundant discharge from the wound thus inflicted. The applications which were made use of in the further treatment of the case, consisted merely of some detersive injections which were thrown up into the vagina. The patient was perfectly cured. M. Murat reports that his friend M. Champion had seen three cases of collections of serous fluids within the proper substance of the parietes of the vagina. The

tumours thus formed were in some degree isolated and pendulous in the vagina. Their envelopes were thin and slender, and in size they exceeded that of a goose's egg. The contents of all of them were discharged in consequence of their exposure to the strong pressure of childbirth. Their removal, thus incidentally effected, proved in every instance a permanent cure.

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#### OF ADIPOSE TUMOURS WITHIN THE VAGINAL TISSUE.

The recto-vaginal septum has occasionally given locality to tumours consisting chiefly of adipose deposits. A woman of forty years of age became the subject of a tumour of this description. It grew so rapidly that in two years it presented itself between the labia, and measured eight inches in length. Its inferior part was globular, and it bore closely on the rectum. The patient sustained no pain excepting from two or three ulcerations which were situated at its most depending part, and were the effects of friction against the contiguous surfaces. She was, however, the subject of profuse fluor-albus, and of catamenial evacuations so considerable, that the intervals between them were but of short duration. This state of things brought her into a condition of extreme weakness. An attentive examination made it appear that the tumour was contained within the proper tissue of the vagina, and that it was sound, free from morbid adhesions, and moveable in all directions and throughout its whole extent. It was pliant without being soft, and yielded to pressure without the patient suffering much inconvenience by it. M. Pelletan upon recognising its adipose character, and its situation to be between the vagina and the rectum, pushed it strongly downwards in the direction of the outlet of the passage with his finger introduced into the rectum. An incision was made through its surface from the ulcer at its most depending part to its very summit high up within the vagina. The finger, and in some places a small spatula, were introduced between the tumour and its envelope, by which were ruptured the membrano-cellular fibres which slightly connected their respective surfaces together. The tumour thus separated from its connexions in front, was then detached from the rectum by a bladed instrument which was scarcely edged, and which rather served to rupture than to incise the intermediate cellular tissue. Its removal was followed by an effusion of blood, which continued some time, and which



occasioned some uneasiness, although it did not come in jets. Its colour however was not that of arterial blood. To arrest this discharge, but more especially to restore the vaginal tissues which had enveloped the tumour to their relatively proper places and connexions, the vagina was charged with lint, which was not removed till the fifth day after the operation. It is probable that from that moment a complete reunion took place; for there was no perceptible formation of pus. The patient subsequently had her catamenial evacuations at the proper periods, and in suitable and natural quantities. The fluor albus also gradually ceased, and the general health was eventually perfectly restored. Pelletan, *Clinique Chirurgicale*, tom. i. p. 203.

A specimen of a FIBROUS tumour situated between the vagina and the bladder is described by M. Pelletan in the same valuable work. *Clinique Chirurgicale*, tom. i. p. 224, and quoted at considerable length in the 4th edition of the present work. Vol. i. p. 138. For the fact of fleshy tumours embedded within the substance of the vaginal tissue, see Baillie's *Morbid Anatomy*, p. 427.

M. Pelletan has enriched this important subject of inquiry by the addition of a case of what he has designated a lymphatic tumour. A woman of between twenty-four and twenty-six years of age was the subject of an easy and natural labour. It happened, however, during his attendance on the case that her surgeon had recognised the presence of a tumour within the pelvis, which had the effect, in some degree, of impeding the transit of the child's head through the neck of the uterus. It did not occur to him at the time to make any attempt to ascertain its nature. In about eight months subsequently to this confinement, the patient began to sustain inconvenience from the increasing volume of her tumour; it having then begun to interfere rather distressingly with the functions both of the bladder and the rectum. M. Pelletan was consulted, and came to the conclusion that it probably contained A FLUID OF THE CONSISTENCE OF "GELATINOUS LYMPH." It was moreover his impression that it was immobile, having for its locality the right side of the pelvis, embedded in cellular tissue between the rectum, vagina, and the urinary bladder. He was likewise of opinion that it was an encysted tumour; but that it would not be possible to extract it entire; and in that event that it would be necessary to make a long incision into its cavity, for the purpose of evacuating its

contents. The operation was accordingly undertaken by the ordinary medical attendant of the family. That gentleman plunged his bistourie into the upper part of the tumour, and thence made an incision of some length. But no discharge of fluid following, M. Pelletan requested permission to make another examination; and found the tumour displaced from its former locality, and now situated immediately between the rectum and the vagina. He found it necessary to introduce his left-hand as the other operator had done, in preference to his right-hand, which he had himself made use of during his first exploration. On introducing his left-hand he now came to the conclusion that the tumour was adherent only by very loose cellular tissue, and that in fact it belonged to a class of tumours of which he had already seen more than one specimen. On the invitation of his junior colleague, he proceeded to complete its separation. To effect that object, he introduced first one finger, and then a second, between the vagina and the tumour. The cellular tissue of the vagina yielded extremely easily; but he encountered much difficulty in getting a good hold of the tumour, for the purpose of rupturing the cellular tissue by which it was connected POSTERIORLY. That object was, however, eventually attained. He had scarcely effected his purchase when the cellular tissue at the back part of the tumour gave way; which it did without giving the patient any great degree of pain. The tumour then sank into the external orifice of the vagina, whence it was immediately withdrawn without further difficulty. There was no more effusion of blood than what followed the first incision into the walling of the vagina. The parts were washed and cleansed; and the two operators waited long enough to ascertain that no hæmorrhage was likely to take place. The vagina was charged with pledgets of lint and fine old linen, in order to force the surfaces of the cavity which had contained the tumour into mutual apposition. The patient was put into her bed; and consoled for the pains which she had endured, by a view of the diseased structure which could no longer endanger either her life or health. The tumour proved to be a LYMPHATIC one, concrete in consistence, but yet sufficiently soft to be moulded by the hand into any form which might be wished. It was enveloped by cellular tissue, similar to that which is usually found to adhere to the surface of the kidneys. The cellular tissue of its posterior surface was exceedingly delicate, and presented no appearance

of vessels which could have been ruptured during its forcible detachment from the parietes of its investing cavity. The integrity of its membranous covering furnished a most satisfactory proof that it had been wholly and perfectly removed. The patient recovered rapidly and without accident. *Clinique Chirurgicale*, tom. i. p. 234.

OF PROLAPSION OF THE VAGINA.—This mal-position of the vagina may be partial, so as to affect only one portion of the entire circle of its parietes ; it may consist in a moderate descent from relaxation of a superior portion, producing an inconvenient or even painful bearing upon an inferior part of the same organ ; it may amount to a presentation of the prolapsing structure at the external orifice ; or it may even form a large protruding tumour which shall reach to some distance beyond the level of the labia pudendi. It may be confined to a relaxation and descent simply of the mucous membrane of the passage, which, however, may quite suffice to occasion much inconvenience and distress to the sufferer ; or it may involve the entire parietes of the vagina, and even implicate by its connexions the adjoining viscera in the general consequences of its own displacement. *Sabatier sur le déplacement de la Matrice et du Vagin. Mémoires de l'Académie de Chirurgie*, tom. iii. p. 361—393. *Précis d'Opérations de Chirurgie*, par Le Blanc, tom. ii. p. 280.

The worst forms of prolapsion of the vagina may actually amount to an entire protrusion and inversion of all its parietes. Some authors have introduced among the several forms and degrees of vaginal prolapsions, the technical distinction of essential and symptomatic ; the first consisting of relaxation and descent simply of the mucous membrane of the vagina ; and the second amounting to a general looseness or disruption of its external parietes from their naturally adjoining surfaces, and to a total inversion of all its tunics. An incipient inversion of the vagina presents itself at the external orifice, under the form of a simple descent of some one portion of its mucous membrane ; and is to be distinguished by its relative position to the uterus, of which the orifice will be found higher up in the passage and totally unconnected with it ; and also by its retaining something of the feel and appearance of its peculiar and characteristic rugose structure. The portion of the mucous membrane of the vagina most liable to become thus incipiently the seat of descent, is that which is naturally connected by cellular tissue to the



rectum and perineum ; and hence the symptom of a sense of uneasiness, as if from the presence of a tumour at the fundament, accompanied by occasional efforts of bearing down, and not unfrequently by much painful irritation and tenesmus. A descent exclusively of an anterior portion of the mucous membrane, is a partial mal-position of the vaginal tissue, which is met with much less frequently than the former ; and when it does happen it can scarcely fail to disturb the functions of the bladder and the urethra. A sense of fulness and an actual intumescence of the part, are felt in this case in front of the vaginal passage immediately within the vulva. In greater degrees of relaxation, the mucous membrane becomes more extensively implicated, so as to involve a tract of it of less or greater depth, commensurate with the entire circle of the passage. At length, an irregularly roundish tumour presents itself at the external orifice, exhibiting more or less distinctly the rugose plicæ characteristic of the surface of the mucous membrane of the vagina. Upon a more particular examination of the prolapsing tumour, something of the appearance of an aperture, formed by a puckering or gathering together of its surrounding folds, will be found at its most depending part. The finger gradually insinuated at this part will pass readily through its converging parietes, and encounter the vaginal portion of the uterus, either immediately behind it, or else at a very little distance beyond it. The vagina thus inverted and presenting, forms a tumour of a much larger diameter than is formed by the vaginal portion of the uterus when prolapsing and occupying the same situation. This difference between a prolapsion of the vagina primarily, and a descent of the uterus, accompanied by a partial inversion of the vagina, is very correctly indicated in the two figures drawn from actual specimens in Plate X. of the atlas. The first figure gives very precisely the idea of AN ADVANCED DEGREE OF A PROLAPSED VAGINA. The aperture at its most depending part is formed by the puckering and gathering together of a superior portion of its mucous tunic. At the menstrual period, the catamenial fluid will necessarily be seen trickling through that opening ; which has led careless practitioners to mistake it for the proper orifice of the uterus. The external surface of the entire tumour, given in figure 1, is therefore the mucous membrane of the vagina. Within the body of the tumour, constituting its principal bulk, and accessible at a very short distance from its aperture, is the uterus ; that

organ being dragged down much below its natural situation by the prolapsed vaginâ. Figure 2, represents a true prolapsus of the UTERUS amounting to a slight degree of what has been technically called PROCIDENTIA of it. The orifice to be seen at its most depending part differs from the opening in the other figure, by being a transverse chink or lengthened aperture, stretching across from side to side, which are truly the form and direction of the orifice of that organ in its natural and healthy state. The inferior or uterine part of the tumour is obviously smoother and more polished, and gives the idea of a firm and dense structure within. What is represented above the boundary ridge, which may be observed to encircle the tumour at *a*, is the superior part of the mucous membrane of the vagina inverted. What occupies the interior of that part of the tumour is of course a portion of the body of the uterus.

The predisponent causes of descents of the vaginal parietes are, their forcible and frequent distension by the bearing of many children; their occasional exposure to much inordinate distension during the performance of the operation of turning and of some other manœuvres incident to the practice of midwifery; labours of great severity and long duration from whatever causes; careless personal management during the puerperal period; and a delicate state of the general health.

In incipient cases of descents of the vagina, when a portion only of the mucous membrane prolapses, the inconvenience is for the most part not very great, amounting to little more than a sense of weight and pressure felt at the external orifice. When the prolapsion is more considerable, the functions of the bladder and rectum are often disturbed; and when the presenting tumour becomes so large as actually to amount to a procidentia, such as is delineated in the first figure of the plate already referred to, then the patient will have to sustain some of the symptoms incident to prolapsions of the uterus; such as violently aching pains about the loins, hips, and thighs; dragging pains at the groins; great tenderness of the surfaces immediately implicated; a more or less abundant fluor albus; irritation of the bladder, with difficulty in voiding its contents; a corresponding state of the rectum; a painful chafing of the surfaces about the vulva from the constant contact and pressure of the tumour upon them; a state of angry irritation, and even of

inflammation of the surface of the tumour itself, from its exposure to the action of friction against the patient's linen, and also to that of a constant stillicidium from the bladder. In some few cases the tumour has become so much engorged and strangulated, that it has actually fallen off in a state of mortification. *Mémoires de l'Académie Royale de Chirurgie. Mém. par Sabatier, tom. iii. p. 390. Essai sur Différentes Hernies, par M. Hoin. Le Blanc. Précis d'Opérations de Chirurgie, tom. ii. p. 347.*

In incipient cases of prolapsion of the mucous membrane of the vagina, the treatment is generally very simple and successful. The patient will have little more to do than to wear a sponge pessary of sufficient size to keep the relaxed parietes of the vagina in their proper situation. With a little instruction, this simple piece of mechanism will be readily introduced by the patient herself. The finest pieces of sponge should be chosen for this purpose; and several must be provided, in order to secure frequent changes. The patient should always wear a pessary of this kind in the day time. After the sponge shall have been effectually introduced into the vagina, it should be charged with an astringent lotion of sulphate of alum, sulphate of zinc, or acetate of lead dissolved in distilled water. The charge should be repeated three or four times daily; which will both promote cleanliness, and more effectually meet the principal indication for which it is to be used, that of restoring by the astringent and corrugating action of the fluid the diminished tone of the surfaces to which it is to be applied. After the patient shall have worn a sponge pessary of sufficient size to answer the earliest demands of her case for about ten days or a fortnight, it will admit in most cases of being clipped down into a smaller size; and in this way of being repeatedly reduced in size, until a pessary of any size shall altogether cease to be necessary. The material of the pessaries here recommended being of animal tissue, the patient should be duly impressed with the necessity of frequent changes of them. In incipient cases of vaginal prolapsions our object should be to accomplish a radical cure of them. For the attainment of this object the mechanical means most entitled to our preference are sponge pessaries. Even in a more advanced stage of vaginal descent, where there might be considerable protrusion of the inverted tissue through the external orifice, the same



method might be tried ; and in recent cases of this description, it would not unfrequently meet the wishes of the medical attendant beyond his most eager expectation.

The practice recommended by Rhoonhuysen and one or two other writers, of removing a part or the whole of the prolapsing tissue by amputation, has not been sanctioned either by the adoption or recommendation of English surgeons ; and notwithstanding the general impunity which is represented to have attended this treatment, it appears to the author to be both harsh and hazardous. In child-bearing women, the abstraction of any considerable portion of the parietes of the parturient passage might lay the foundation for dangerous or fatal ruptures of the vagina in subsequent labours. In women more advanced in life, operations of this kind might be followed by other perilous consequences ; whereas to the greater number of such persons, the wearing of well-adapted pessaries, made either of ivory or wood, might be attended with but little inconvenience.

In the worst forms of descents of the vagina, to which the epithet of *procidencia* has been usually applied, the first duty of the practitioner is to effect the reduction of the prolapsing tumour. After the accession in such cases of severe inflammation and consequently of much enlargement of the tumour, that duty might be attended with extreme difficulty. The varieties of displacement of the vagina will be found complicated with descents of the uterus, and not improbably with considerable deviations from the positions respectively both of the bladder and rectum. "In inversion of the vagina, and prolapsus of the uterus," says Dr. Baillie, *Morbid Anatomy*, p. 430, "if the cavity of the pelvis be examined, the fundus only can be seen with its appendages very imperfectly, or the whole of the uterus is hid entirely. The bladder then appears to be in contact with the rectum. In this state of the uterus and its appendages, I have known adhesions formed between them and the neighbouring parts. These must have rendered the reduction of the uterus and the vagina to their natural situation very difficult, and perhaps till the adhesions were a good deal elongated, impossible." The fact here reported by Dr. Baillie, naturally suggests the importance of effecting the reduction of the vagina under the circumstances of such complications AS EARLY AS POSSIBLE. During the presence of much swelling and phlogosis of the prolapsed structures, it will be found necessary to apply leeches to them in considerable numbers,

and subsequently fomentations, to promote a copious discharge of blood, before any serious attempt at reduction is undertaken. In this way the tumour will become so materially reduced in volume in many cases, that its replacement subsequently will become a matter of comparative facility. The persevering application of pressure to it from below, a soft sponge being interposed between it and the practitioner's fingers, will seldom fail to attain the object ultimately. In these worst varieties of complicated descents, sponge pessaries will rarely suffice to sustain the parts in their proper situations, after their reduction shall have been duly accomplished. The practitioner will therefore have to make his choice, according to the circumstances of the particular case, of a ring or globe pessary; or possibly, in some extreme forms of procidentia, of other and more complicated contrivances. Saviard's Surgery, English translation, p. 25, obs. 10.

OF HERNIAL PROTRUSIONS OF INTESTINES, WITHIN THE VAGINAL PASSAGE.—Vaginal hernia of the intestines, though comparatively of infrequent occurrence, is a subject which for many years has been well known to pathologists. In order to comprehend the precise nature and localities of the intestinal protrusions in question, it will greatly conduce to the advantage of the reader that he should have a correct understanding of the anatomical structure and relations of the several parts which constitute the flooring of the human pelvis. We have already seen that the pelvic cavity in the skeleton is formed by the union of several bones, which together constitute the external parietes of the inferior portion of the abdominal cavity. In the entire subject, the superior and anterior part of the same great cavity is protected by a pretty strong walling of moveable and distensible tissues, consisting of muscles, cellular membrane, and integument. Above, it is bounded by a transverse walling, also moveable and distensible, but nevertheless possessing very considerable power both of protection and resistance, called the diaphragm. But behind, and to a certain extent below, its external boundaries are made of the strongest materials that nature has been known to employ in the architecture of animal bodies: and hence these portions of the external parietes of the great cavity in question are only slightly moveable, and in no degree distensible. The reader will next naturally determine his attention to the construction of its inferior boundary, where are situated the sexual

organs, together with the several passages and tissues which constitute the great outlets of the body. The interior of this cavity is lined throughout the greater part of its extent by a delicate but tenacious serous membrane, which, in addition to several other important functions which it sustains, serves pre-eminently the purpose of giving a uniform and a common surface of attachment and connexion to the other multiform tissues which it adjoins and invests. It is in consequence of being thus connected to a common surface that the parts invested are kept mutually together, and in sufficient lateral contiguity to ensure the more or less perfect continency of the cavity as an enclosure for its visceral contents, and it is indeed for this reason that hernial protrusions are not every-day occurrences. But notwithstanding the admirable beauty and general efficiency of this contrivance for providing a secure and permanent lodgment to the visceral contents of the abdominal cavity, experience proves that circumstances have occasionally occurred which have sufficed to weaken, and actually to make breaches in certain parts, and more especially in those parts of the surrounding parietes least fortified by the original strength or continuity of the outworks. Hence the occurrence of hernial protrusions ALMOST EXCLUSIVELY AT THOSE PARTS where the materials of the external walling are most sparingly employed, and where contiguous structures are most easily separated by the accidents of life, or by the more gradual operation of the ordinary causes of over-distension and consequent reduction of strength to which the developments incident to the operations of certain functions, and especially the presence of certain diseases, almost unavoidably expose them.

If we apply these general considerations to what we know of the anatomical construction of the inferior part of the abdominal cavity, especially in the female, we shall place ourselves in a situation to understand and satisfactorily to account for the comparative frequency, as well as for the several varieties, of hernial protrusions and prolapsions to which women are especially liable. To adapt the pelvis for some of its peculiar offices in the female body, it is necessarily made much more capacious than that of the male subject. For the purposes of parturition, its cavity moreover can only be occupied by structures almost unlimitedly distensible during the performance of that eventful function. The peritoneal flooring of the abdominal cavity is thus



left naturally more or less exposed to the influences of any causes of over-distension that may be applied to it: whereas also in all the cases of vaginal hernia of the intestines of which the histories are recorded, the descents have presented themselves either anteriorly or posteriorly to the orifice of the uterus where the power of the sustaining tissue is weakest. At the peritoneal cul-de-sac, constituting the pelvic bottom of the cavity, there are spaces, which, from the fact of their being respectively situated anteriorly and posteriorly to the natural locality of the uterus, are called the anterior and posterior chambers of the pelvis. Beyond the limits of these chambers inferiorly, the peritoneum does not extend. They are divided from each other principally by the uterus and its lateral productions the broad and round ligaments. The abdominal portions of the uterus, including the whole of its body and a small part of its neck, are invested by a peritoneal covering. On either side of it, its membranous investments meet, and by mutual coalescence of their fleshy surfaces form two strong and broad webs of membrano-ligamentous tissue, which serve to connect it to the lateral parietes of the pelvis by numerous and equidistant points of attachment. These duplicatures of the peritoneum, together with the body of the uterus itself, serve, as has been already stated, to divide the female pelvis into the two chambers alluded to.

Now it is the yielding of the peritoneal lining of each of these chambers, consisting as it does of only one layer of membrane, and being perhaps as little sustained by the support of contiguous tissues as any other part of the peritoneum; it is the yielding of the peritoneal lining of these chambers to the superincumbent force applied to them that lays the foundation and constitutes the beginning of entero-vaginal hernia. When the flooring of the anterior chamber, which is bounded by the bladder anteriorly, by the uterus posteriorly, and by the round and broad ligaments on each side, becomes the seat of distension and protrusion, the hernial descent takes place laterally, and somewhat anteriorly within the vaginal passage. Directly anteriorly, it cannot indeed find room by reason of the intimate connexion which subsists between the neck of the bladder and the vagina: whereas in a descent from the posterior pelvic chamber, which occurs much more frequently than the anterior protrusion, the tumour is found to present laterally and more posteriorly. The envelopes of the cyst of this variety of intestinal protrusion, are one or more of

the tunics of the vaginal walling of the part affected, greatly relaxed and distended, together with the peritoneal lining of the anterior or posterior chamber of the pelvis.

In cases of simple entero-vaginal hernia, such as are here supposed, the ligaments of the uterus, as well as that organ itself, are presumed to maintain their natural integrity and their relative positions within the pelvis. But in cases of more extensive relaxations of the peritoneal fastenings of the uterus to the pelvis, and especially of disruption or other diseased conditions of the lateral ligaments, it is obvious that entero-vaginal hernia may become complicated both with prolapsion of the uterus and retroversion of the bladder. With respect to the constituency of the hernial sac, Baron Boyer states, *Traité des Maladies Chirurgicales*, tom. viii. p. 347, "that it is not yet determined, whether in all cases of entero-vaginal hernia, both tunics of the vagina are distended at the same time, or whether by opening for itself a route through the fibres of the external tunic by merely separating them, it effects the distension only of the internal tunic."

The intestine which most frequently protrudes in entero-vaginal hernia, is the ileum; although in some few cases the colon and the cæcum have also been implicated in the descent. The vaginal swelling, occasioned by the intestinal prolapsion of which we are now treating, is soft and elastic, perfectly compressible on the application of pressure, "increasing by standing, and diminishing or entirely disappearing when the patient lies down. It becomes more tense when the patient holds her breath, and an impulse is felt on it during coughing. The contents may be readily pushed up by the hand; but they descend again if the patient coughs or strains." *Lawrence's Treatise on Ruptures*, p. 545. *Sandifort, Observ. Anatomico-Pathologic. lib. i. cap. 4. de hernia intestino-vaginali, aliisque hujus morbi speciebus.*

The formation of an entero-vaginal hernia has in a small proportion of cases been so slow and gradual, that the date of its commencement has not been positively known. See *M. Hacknell's case*, as published by *M. Hoin, Essai sur les Hernies*, obs. 7; and also probably the case of *Professor Gunz, De Herniis Libelli*, p. 84. But in the greater number of cases, the intestinal displacements have taken place suddenly in consequence of strong personal efforts, quick movements, violent shocks from

falls, and also as results of certain varieties of difficulties incident to the function of parturition.

The first recorded case of entero-vaginal hernia, was indeed occasioned by an awkward and rapidly-effected movement of the body in the instance of a person rendered predisposed to it by a recent confinement. It occurred in the practice of M. de Garengeot, a member of the French Academy of Surgery, who distinguished himself during an early period of the last century by some very original and otherwise most meritorious contributions to the pathology of hernia. This interesting case is given at considerable length in our *Principles and Practice of Obstetric Medicine*, vol. i. p. 162, 4to edition. In vol. i. p. 163 of the 4to edition, is also detailed a case of vaginal hernia, which was the consequence of a heavy fall from the joists of a house in the course of erection to the floor below. Reduction with some difficulty of the herniated intestine was effected, after which the constitutional symptoms which supervened, and which were of a very intense and alarming character, were successfully treated by free bleedings from the arm, and leeches applied to the left iliac region. The utmost quiescence of the body was enjoined, and the state of the bowels was vigilantly watched and duly regulated. For the particulars of the local treatment see the original narrative. The ultimate cure proved perfectly complete with the exception of a trifling impediment, which has ever since attended the function of micturition.

It has been observed that entero-vaginal hernia has more frequently had the posterior than the anterior chamber of the pelvis for its locality. Of this variety of intestinal prolapsion is an example quoted by Hoin, which was exclusively the result of repeated and violent efforts of a young lady of a constipated habit of body, to evacuate the contents of her bowels. See *Princip. and Pract. of Obstet. Med.* 4to edition, p. 170.

It would seem more important in practice to establish the proper distinctions between hernial protrusions of intestines into the vagina and other kinds of tumours occupying the same passage, than between the several varieties of such protrusions themselves. It might be very possible for a practitioner not much experienced in matters of this kind, to mistake, for instance, a case of hernial descent for prolapsion of the vagina. The practical result would of course be, that he would content himself with merely introducing a pessary into the vagina, without pre-



viously effecting the reduction of the hernia. Of such a blunder the consequences might be very serious.

From what has already been described of the localities of entero-vaginal hernia, it will have been seen that such descents always have for their seats, relatively to the pelvis, either of the two spaces which are called its posterior and anterior chambers. In the case of the young woman, a patient of Guy's Hospital, quoted by Sir Astley Cooper, the intestine had effected its descent from the posterior chamber, so that it occupied the vagina posteriorly and to the left side. "This hernia protrudes," observes Sir Astley, "into the space that is left between the uterus and the rectum. Between this reflection and the perineum is situated a loose cellular membrane, the pressure of the intestine upon the implicated portion of peritoneum, forces it downwards towards the perineum; and being unable to pass further in that direction, it is pushed towards the vagina, and projects its posterior part forwards. This hernia has been sometimes found placed more laterally, producing a tumour at the side of the vagina instead of its posterior part. If this tumour then were dissected, the vagina would be found covering it anteriorly. Behind this is placed the peritoneum, and then the intestine would be seen in the peritoneal sac, between the vagina and the rectum." The reporter of the case then proceeds to express the surprise he once felt, that these morbid descents do not more frequently occur than they do; inasmuch as the small intestines are for the most part the subjects of the protrusions; whilst the reflection of the peritoneum is too feeble to support any considerable pressure; but "I believe," he proceeds, "the reason of its being comparatively rare is, that the oblique position of the pelvis is unfavourable to its production. In the erect as well as in the sitting posture, the intestines fall rather upon the symphysis pubis and the bladder, than on the posterior part of the pelvis: and when thus gravitating into the anterior part of the pelvis, they push the uterus against the rectum, and close the space which would be otherwise existing between them. But for the oblique position of the pelvis, this must be a very frequent disease: for upon passing my fingers in the dead body from behind the uterus in the cavity of the pelvis in women who have died a few weeks after delivery, I have found that I could thrust the reflection of the peritoneum between the uterus and rectum, readily down to the perineum." Cooper on Hernia, edit. ii. p. 56.

The existence of entero-vaginal hernia, when the descent takes place from the posterior pelvic chamber, may be ascertained by examination, either by the vagina or by the rectum; inasmuch as the tumour must be considered as being, although somewhat indirectly, placed between those two canals. This point of the pathology, also, is noticed by Sir Astley Cooper, and is well illustrated by a case which occurred in the practice of the late Dr. Haighton. "Dr. Haighton," observes Sir Astley, "informed me that he had seen an example of a tumour of this kind descending between the vagina and rectum. When pressed upon from the vagina, it protruded the rectum. When compressed from the rectum, it forced the vagina upon the os externum." From the concluding clause of the brief description given of Dr. Haighton's case, it may be presumed that he considered it as one of perineal hernia; for he adds, "Whilst the perineal hernia is capable of being reduced, it may be prevented from descending, by the pressure of a pessary, which must be of large size."

Similar to the foregoing case of Dr. Haighton's, and nearly amounting to one of perineal hernia, is that of Dr. Smellie's, case 4, no. 2, collection 11. The mode of management adopted by that eminent practitioner was so proper and successful as to deserve the reader's attention. In the year 1731 he was called to a woman who had felt a swelling on the left side of the anus which had gradually increased. When she was in bed it always disappeared, but when up and on foot it again returned. This hernia continued down all the time of her first labour; upon which an inflammation and strangulation of the intestine ensued; so that it could not be reduced as usual. She sustained a large discharge of blood after delivery: and by having recourse to discussing fomentations and warm emollient cataplasms the stricture was overcome and the hernia reduced. On the occasion of her next labour the intestine was forced down again. The progress of that labour was early and rapid: but before the head of the child had descended into the cavity of the pelvis, Dr. Smellie was enabled, by introducing his hand into the vagina and pushing the head above the os sacrum, to effect the reduction of the hernial protrusion. The membranes were ruptured by the operation. The waters being discharged, the head was forced rapidly down into the pelvis, so as to take possession of the space previously occupied by the descending intestine. By that procedure the patient was safely delivered without undergoing the same risk as

she had been exposed to on the former occasion. See additional cases in the 4to edition.

**OF ENTERO-PERINEAL HERNIA.**—This form of hernia is common to both sexes. In the female, the intestinal protrusion takes its origin from the posterior chamber of the pelvis, and effects its descent between the vagina and the rectum until it reaches the outlet of that cavity, where it produces a swelling in most cases of a lateral portion of the perineum, together with the immediately adjoining part of the labium pudendi of the same side. Richter expresses some surprise that perineal hernia should ever present itself in the female. "One would at least suppose," he says, "that the intestine in descending between the vagina and the rectum should occasion a vaginal hernia before it could arrive at the perineum, and that as soon as it formed a vaginal hernia, it could have no ulterior tendency." "We might presume at all events," he proceeds, "that perineal hernia could only take place in unmarried women, whose vagina, unrelaxed by the functions and duties imposed upon them subsequently to marriage, might by successfully resisting the intrusion of the descending intestine through their own proper parietes be competent to determine its route towards the perineum." Rougemont's French Translation of Richter's Treatise on Hernia, chap. 21, p. 280. But the correctness of this reasoning, as indeed the German professor himself acknowledges, is not supported by experience; it being really the fact that married, and especially pregnant and recently puerperal women are principally if not exclusively the subjects of entero-perineal hernia. The truth of the matter is, that the reasoning in question is not quite sound and conclusive, because it does not take into its estimate the changes of condition produced by pregnancy and its consequences on the structures through which the perineal hernia has to make its way. The tissues here more immediately referred to are the sphincter and levatores ani and obturatores interni muscles, powerfully sustained and well connected together by large and strongly-webbed masses of fascial and cellulo-aponeurotic tissue. Camper, Demonstrat. Anatom.-Pathologic. lib. 2. tab. 2. fig. 1. Mr. Key's note on the true cause of the infrequency of vaginal hernia. Cooper's Hernia, p. 56. Now in their ordinary circumstances, and in their original condition of natural soundness and firmness of structure, the parts occupied by the several varieties of tissue



just named must surely be deemed quite as competent to resist any impulses or pressure calculated to produce hernial protrusions as any of the less protected portions of the vaginal parietes. In point of fact the author knows of no recorded case of a strictly entero-perineal hernia IN AN UNMARRIED FEMALE SUBJECT. The changes produced in the condition of the parts concerned by the influences of pregnancy and parturition would indeed appear to be all but absolutely necessary to the existence of the intestinal prolapsion in question. Of the nature and extent of these changes and of their particular bearing on the present subject, we may form a pretty correct notion from the following statement of Sir Astley Cooper: "But for the oblique position of the pelvis, this," entero-vaginal hernia, "must be a very frequent disease: for upon passing my finger in the dead body from behind the uterus, within the cavity of the pelvis, in women who have died a few weeks after delivery, I have found that I could thrust the reflexion of the peritoneum between the uterus and rectum READILY DOWN TO THE PERINEUM." Cooper's Hernia, p. 56.

The treatment of this variety of hernia is to be conducted upon precisely the same principles as that of entero-vaginal hernia. The first indication is of course to effect the reduction of the protruded intestine and its cyst by the taxis; and if necessary, by reason of strangulation or other serious symptoms, by an operation. The extreme importance of a correct diagnosis in cases of perineal swellings, when considered objects of operative surgery, is strikingly illustrated in a letter on the dissection of a perineal hernia of the bladder, written by a late eminent pathologist, Mr. Allan Burns, of Glasgow, to Sir Astley Cooper, and published in the second edition, p. 64 and 65, of the latter gentleman's celebrated work upon hernia. That important dissection will, indeed, be made the subject of a more particular reference at a future page.

After the reduction of the herniated intestine and its cyst shall have been duly effected, the second indication of treatment will consist in the application by means of a well-adapted pessary of such firm and equable pressure to the entire tract of the descent, as shall prevent its subsequent prolapsion.

In cases of descents of the uterus during pregnancy, the reader may be aware of its being a common practice to dispense with the use of pessaries at advanced periods of gestation. In a case how-

ever of vaginal or perineal hernia, the use of the pessary would be then more peremptorily indicated than at any other time, and its mechanism should therefore be such as to ensure its being worn both easily and efficiently during every stage of the pregnancy. To attain that object, it might be necessary to be furnished with pessaries of different dimensions, especially as to depth, and of different forms for the different stages and incidents of gestation. The rule of practice should be, that no part of the tract of a reduced intestinal descent should be left at any period of gestation, subsequently to such reduction, without the most efficient mechanical support that can be made applicable to it. On the accession of labour it will of course become necessary to remove the pessary; a duty which in most cases will devolve on the party previously employed to introduce it. Its removal should therefore never be attempted before the arrival of that gentleman, or rather of the gentleman whoever he might be, actually engaged to attend the patient during her confinement; nor even by him until he was quite prepared, and required to give the case the benefit of his immediate personal services. For no sooner should the pessary be removed, than it would become the duty of the practitioner to introduce the greater part, and in most cases the whole of his hand into the pelvis, for the purpose of keeping up above the brim of that cavity every fibre, if possible, of the intestine which had before protruded, until the more bulky part of the child's head should effect its transit beyond the seat of the hernial aperture. Should this important duty be neglected, prove impracticable, or be imperfectly performed, or in the event of any dangerous impediments presenting themselves to the labour whether founded upon the form of pelvis, condition of the orifice of the uterus, or upon great languor and inertia of the parturient principle, it might become a matter of the most imperious necessity, even in the course of a very few hours after the commencement of the action of parturition, to effect the delivery artificially. See Mr. Stubbs' case, quoted at p. 176 of the 4to edition.

In a severe case of parturition complicated with an irreducible herniated prolapsion of intestine, whether already in a state of actual strangulation, or only in great danger of being exposed to severe pressure and contusion, it is obvious that the head of the child should not be allowed to remain long arrested, though it might not at the same time be impacted in the parturient pas-

sage. In the event of the birth of the child being accomplished without the previous reduction of the hernia, the practitioner will of course see the propriety of affecting its reduction as soon afterwards as possible. Immediately upon the expulsion of the child, he should therefore introduce his hand into the vagina; in the first place to guard against an increase of the existing evil, and then to be in readiness for the safe and expeditious removal of the placenta, which, not very improbably, might be required to be removed in the course of not many seconds after the expulsion of the child. It deserves to be remarked that in cases of labour complicated with hernia, hæmorrhage from the uterus may always more or less be apprehended. That danger effectually repelled, or the hæmorrhage itself subdued by the induction of a powerful contraction of the womb to expel the placenta, and subsequently by the adoption of proper measures to ensure the permanence of its contracted state, the medical attendant will find himself at liberty to renew his attempts to effect the reduction of the herniated intestine. In the altered circumstances of the case, he will then probably succeed speedily and without difficulty. When the hernia, including its peritoneal cyst, shall have been perfectly reduced, a pessary of sufficient magnitude should be forthwith passed up into the vagina, and well adjusted to the source and to the tract generally of the recently protruded intestine. A pessary, to be easily managed and admitting of efficient adjustment and of frequently repeated adaptation to the functional and pathological incidents of the puerperal state, should be soft, absorbent, and elastic. The material which is known to possess these properties most perfectly is sponge; and in the peculiar circumstances of the case under consideration, no other than a pessary made with that substance could reasonably be expected to be tolerated. A large piece of delicate sponge should therefore be selected and cut down to the form deemed best adapted to the more essential and immediate purposes required. There should of course be several pessaries of this material provided, in order to supply daily or even more frequent changes of them during the earlier period of the puerperal state. The changes in question, it is obvious, should be made by the medical attendant himself. During the first twelve hours after delivery, he should visit his patient for this purpose at least more than once. The patient in the mean time should be especially instructed as to the duties



devolving principally upon herself: among which should be most pointedly and pre-eminently instanced, that of maintaining under all possible circumstances a horizontal position of her person. The author is well aware of the inconveniences which might be expected to result from the rigorous observance of this rule. Observed however it must be, at any expense of trouble and inconvenience, whether to the patient herself or to her nursing attendants. The interests involved in its observance are of so important a nature as to be worthy of the greatest sacrifice. Rather than compromise the advantages within reach for the attainment of a radical cure which the puerperal state might afford, and which the results of treatment as applied to uterine prolapsions under the same circumstances would encourage us to hope for, it would be obviously worth the patient's while to submit to almost any temporary annoyances and privations. After an unremitted use of the sponge tents, for about three weeks or a month, when the uterus might be expected very nearly to have recovered its naturally unimpregnated size, the practitioner might possibly with some advantage to the more permanent interests of his patient, determine his attention to any probably useful changes which might then be made in the form, mode of action, or material of his pessaries.

The principle on which it is proposed to attempt the radical cure of vaginal and perineal hernia, by means of pessaries to BE SPECIALLY APPLIED AND USED DURING THE PUERPERAL STATE, is the known disposition of the parts concerned, to exert AT THAT PERIOD a greater degree of self-adjusting and of tone and strength restoring power than at any other time. See Cooper's work on Hernia, p. 54. But for the credit of our art, and for the purpose of ensuring something of a substantial prospect of success in our endeavours, it seems quite reasonable to suggest, that the attempt should only be made with a distinct understanding on the part of the patient, OF HER PERFECT WILLINGNESS AND ENGAGEMENT to maintain inflexibly the horizontal position during a period of at least six or eight weeks subsequently to her confinement.

OF HERNIA OF THE BLADDER. HERNIA CYSTICA. HERNIA VESICÆ URINARIÆ. CYSTOCELE. — Hernial protrusions of the bladder have not often presented themselves to the observation of practical surgeons. When not complicated with prolapsions of other viscera, they have seldom involved consequences of any

serious importance. Of this species of rupture there are at least four distinct localities, which have accordingly given, to as many varieties of the disease, and the several designations of inguinal, crural, vaginal, and perineal hernia of the bladder. Among these different forms of vesical protrusions, the crural is that which has presented itself most frequently in the female subject; see Richter on Crural Hernia of the Bladder, Rougemont's translation: but, inasmuch as both it and its immediate neighbour the inguinal variety of the disease, do not necessarily involve in their pathological history any morbid condition of the internal genitals, their further consideration will not be undertaken under our present head of inquiry. From the immediate and mutual contiguity of the vagina and bladder, it is a fact of constant occurrence, that when the bladder is in a state of distension, it forms an intumescence upon the vagina. But this encroachment upon that passage arises simply from the general and equable yielding of the entire parietes of the vagina connected with the bladder to the pressure made upon it by the mass of fluid allowed to accumulate in that organ. The tumour thus formed may be easily felt by examination per vaginam. But a tumour of that kind cannot be identified with a hernial condition of the bladder. No protrusion takes place, and no injury on the part of either organ is sustained. The term hernia, as applied to an encroachment of the bladder upon the vaginal passage, is only properly used when it is made to express a forcible protrusion, or effectual insinuation, however produced, of a part of the bladder into that passage, through a corresponding portion of the actual substance of the party-wall between the two organs. It is generally supposed that, at the part which thus forms the precise locality of the protrusion, there is a separation of the fibres, a sort of solution of continuity of the mixed structure which forms the external coating of the vagina. In this way a kind of hernial ring is presumed to be formed. The corresponding portion of the bladder insinuates itself at this ring, and comes into immediate contact with the internal or rugose tunic of the vagina. But the character of this latter structure is such as especially to qualify it for yielding indefinitely in all directions. In consequence of this property it readily expands before the pressure applied to it by the vesical tumour, and necessarily becomes its external coating. Hernia of the bladder has usually the anterior part of the vagina for its

locality. The tumour is of larger or smaller volume in proportion to the extent of the vesical protrusion, and to the quantity of fluid by which the entire bladder may happen to be distended. The voluntary evacuation of the bladder does not effect a discharge of all the contents of the tumour, though it does produce a more or less perceptible reduction both of its tension and bulk. Pressure applied to it excites the desire of voiding the contents of the bladder; and, when made more firmly, it, in most cases, but not in all, forces a small quantity of urine to escape by the urethra. It is said sometimes to produce considerable pain both of the bladder itself and also of the iliac and lumbar regions, in the direction especially of the ureters. In the only case of a vaginal hernia of this kind in which the author has been professionally concerned, no ordinary amount of pressure occasioned the slightest inconvenience.

A cystic hernia of the vagina, when of considerable bulk, may be readily distinguished from an intestinal hernia of the same part by a more or less distinct fluctuation of the former, contrasted with the usual elasticity, and also by the occasional crepitus of the latter. This test is less applicable, and scarcely in any degree useful, when the tumour is small. A catheter, introduced by the urethra into the bladder, may, in some cases, be distinctly felt by a finger applied to the root or ring of the tumour. Cystico-vaginal hernia is a much less frequent variety than either the crural or inguinal form of the disease. Of this fact the reason would seem to be, that the parietes of the vagina are more secure against the shocks and various disturbances incident to the contents of the abdominal cavity than either of the other parts, where protrusions of the bladder have usually presented themselves.

The figure of the tumour in the case seen by the author was oviform. In another case it was described as pyriform. Its more ordinary volume is that of a duck's egg. Sandifort, however, states, that he met with a case of it the size of which was equal to that of a man's head. This form of hernia occurs more frequently in married and child-bearing women, than in children or in virgins of any age; although one example at least may be quoted of its having taken place under the opposite circumstances; viz. that reported by Sandifort, *Observat. Anatomic.* p. 55: a case which its reporter states to have been the effect, suddenly produced, of a violent fit of coughing, the patient at



the time being the subject of whooping-cough. If we consider, for a moment, the relationship mutually subsisting between the bladder and the vagina, we may easily comprehend how a rupture of the external tunic of the latter might be effected during a fit of coughing. The compression sustained by the abdominal viscera during the convulsive action of the diaphragm, and the numerous other muscles acting in tempestuous sympathy with it during the cough, is indeed extreme. During the more intense struggles of the paroxysm, it is a matter of frequent experience, that, in young children, females especially, the contents both of the rectum and bladder are suddenly and irresistibly evacuated. The sphincter of the bladder acts however ordinarily in resistance to this result. Let, then, that organ be supposed subject to various degrees of plenitude, and exposed, for many successive weeks or months, to the severe impulses incidental to the actions of the disease, and it will not appear surprising, that such violent and frequently repeated encroachments of the bladder should have the effect eventually of causing much serious injury to the structure of the portion of vagina unavoidably implicated in its movements. Its tone becoming daily more and more impaired by an increasing extension of the part most exposed to the encroachments of its adjoining tissue, its investing and less extensible fibres at length give way, and a solution of continuity, amounting in fact to a palpable fissure or hernial ring, is ultimately formed. On the advent of the next paroxysm of the cough, the bladder, containing probably but a very moderate quantity of urine, effects its protrusion through the fissured aperture in the external coat of the vagina above alluded to, already half opened and all but completed for its passage.

A condition of the parts not very dissimilar to the one now described is produced by the successive changes incident to the pregnant and puerperal states. During the latter months of gestation, the bladder it is well known is not unfrequently exposed to severe pressure from the gravid uterus. If we suppose such a state of things to be complicated with a more than ordinary amplitude of the pelvis, the effect of the pressure in question would of necessity be more determined in the direction of the vagina than in that either of the abdominal ring or of the crural arch; and the subsequent hernia of the bladder, should the struggles of the expected labour, or any other accidental circumstance which might occur, prove sufficient to produce such an

effect, would furnish an example of the special variety of vesical protrusion under present discussion. See cases in illustration, in the 4to edition.

Vaginal hernia of the bladder would seem to require the same treatment as vaginal enterocele; and in recent cases there can be but little doubt that such treatment would prove successful. The first object is to empty the bladder. That will be accomplished with more or less facility, according to the degree of the departure of the urethra from its natural course; according to the pressure made upon the neck of the bladder, if any, by the boundaries of the hernial ring or fissure in the external coat of the vagina; and according to the amount of compression sustained by the same viscus from the gravid uterus, or any other body or tissues, which may enter deeply within the brim of the pelvis. One can scarcely conceive a case of this kind in which the bladder might not be tolerably easily evacuated by a practitioner accustomed to the duty by means of one or other of the several forms of catheters with which our art is at present supplied.

The next indication of treatment is to effect the reduction of the hernia. In the greater number of cases, this also might be expected to prove an easy duty. To have it performed however as the case might require, or most conveniently admit of, the patient should be placed in a horizontal position with her head and shoulders low, and the breech somewhat elevated. The reduction is then to be managed by a similar use of the fingers as in cases of entero-vaginal hernia.

Our third and last indication will consist in applying a suitable pessary. Sir Astley Cooper does not state what was done in the case of the young woman in Guy's Hospital in compliance with this indication. The continued use of a well-adapted pessary for some time might generally be expected to accomplish a radical cure. The hernia described by Sandifort, *Observ. Anatomic.* p. 55, exhibited a projection of a portion of the vagina at the external orifice, and yet it was eventually cured by the use of a pessary. In common cases, and especially if the results of accidents and when not complicated with existing pressure from the gravid uterus or other parts, the author is of opinion that a sponge pessary of proper form and size would best meet the indication. It would admit of being introduced easily and possibly by the patient herself, and might conveniently be made the con-

ductor of a useful astringent application to the enfeebled or otherwise injured part of the vaginal parietes, more immediately concerned in the protrusion. It need scarcely be added, that the observance of a horizontal position for several weeks subsequently to the accident, might prove a most material auxiliary to the other and more direct measures of treatment.

The foregoing are far from being all the varieties of hernia; for more unusual forms of the disease the reader may consult the 4th edition, whilst others will be treated of in the sequel of the present work.



## CHAPTER IV.

OF THE STRUCTURE, FUNCTIONS, AND USES OF THE UNIMPREGNATED  
UTERUS.

OF THE UNIMPREGNATED WOMB. — UTERUS. — MATRIX. — The womb is a principal organ of reproduction in the female. In its ordinary state, it contains a cavity which is small and triangular; but which during pregnancy changes its form and admits of being distended into different degrees of amplitude, sufficient to contain, without inconvenience, one or more children during the several successive stages of gestation. It is reported of Galen, when he contemplated the texture of this extraordinary organ for the first time, that he said he felt it his duty to sing a hymn to the Gods, in gratitude for having seen a disposition so marvellous: and Swammerdam, many centuries after Galen, gave a description of it under the designation of *MIRACULUM NATURE*. As we proceed in our account of the human uterus, it will probably appear that the above strong impressions which some of its peculiar properties have produced upon the susceptible minds of certain physiologists, are neither unnatural nor much exaggerated.

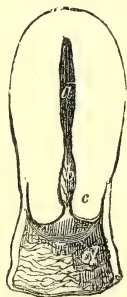
OF THE SITUATION OF THE UTERUS.—The uterus is situated in the small or inferior pelvis, immediately between the bladder and the rectum, having the rectum behind and the bladder in front of it. See the wood-cut at the commencement of the preceding chapter. Above, it is vaulted by the convolutions of the ileum, and below it is attached by continuity of structure to the vagina. It is fixed in its proper situation by its structural connexions with the bladder and the vagina, and by several productions of peritoneum, especially by those prolongations of it which are called the broad and round ligaments. Its connexion with the vagina, of which the texture is exceedingly distensible, and with the bladder which is susceptible of almost unlimited degrees of plenitude and volume, exposes the uterus, even in its unimpregnated state, to considerable and to constant changes of position. Falls, violent efforts to lift heavy weights, any other inordinate exertion of the body, careless conduct during the puerperal state,

which will be more particularly explained hereafter, accidental injuries of any kind which may tend to impair the strength or soundness of any of its above described connexions, may serve to occasion great and even in some cases distressing changes in the position of the uterus. In the dead body, this organ is occasionally observed to incline on one side in consequence of its ligaments having become elongated or shortened, or in consequence of its having been exposed to pressure from tumours and morbid enlargements of contiguous organs. The phenomena of gestation and its consequences, it will be hereafter seen, are not unfrequently productive of important influences on the situation of the uterus relatively to the pelvis and the naturally contiguous tissues within that cavity.

OF THE FIGURE OF THE UNIMPREGNATED WOMB.—The figure of the virgin and unimpregnated uterus is that of an imperfect triangle, or still more appositely, that of a pear moderately compressed in its antero-posterior diameter. Prof. Chaussier describes it as a hollow conoid, depressed on its anterior and posterior surfaces, rounded at its fundus which forms its superior boundary, and terminated suddenly as if lopped off at its inferior or vaginal extremity. The uterus has moreover been compared to an inverted wine-flask; whence has indeed been derived the usual designation of fundus for its slightly rounded superior boundary. Its entire length after having been fully developed at the period of puberty is about three inches; its breadth nearly two inches; and its thickness, its anterior and posterior parietes inclusive, something less than an inch. These several dimensions of the uterus are, however, found very greatly to vary in different subjects apparently similarly circumstanced as to age, stature, and other physical properties. During infancy and childhood it is proportionally small. It rapidly enlarges at the age of puberty; and continues to acquire a gradual increase in all its dimensions until its subject shall have duly arrived at the fullest development of her sexual organization. It again diminishes in volume after the cessation of the catamenial function, and withers into a size comparatively much reduced in advanced old age. After the cessation of its menstrual functions, it occasionally becomes the subject of increased volume from the influence of many serious diseases, to the invasion of which it becomes especially liable at and subsequently to that period. It is greatly enlarged by pregnancy; it again subsides rapidly during the puerperal state; and in three

or four weeks after delivery, it usually in a great measure regains the original standard dimensions of its unimpregnated state.

OF THE MORE OBVIOUS APPEARANCES AND PROPERTIES OF THE UTERUS.—The uterus, when considered as to its exterior appearance, is seen to present two principal surfaces, the anterior and posterior, each of which is rounded into a moderate convexity. Of these the anterior looks towards the bladder and the pubis, and the posterior towards the rectum and sacral surface of the pelvis. It is said to have three borders or margins; one superior which bounds the fundus, and two lateral ones. It is also described as having three angles; two superior lateral ones, which are identified with the uterine limits of the Fallopian tubes; and one inferior, which marks the imaginary boundary between the cavity of its body and that of its neck. Anatomists have given the name of fundus, for a reason already stated, to so much of the superior part of the uterus as is situated superiorly to the uterine apertures or entries into the Fallopian tubes; that of body to the principal and more bulky portion of the organ, which we observed to be situated between the apertures into the Fallopian tubes and the part already indicated, as being identified with the inferior angle of its triangular cavity; and that of neck to so much of it as we find produced below that angle. Its inferior extremity is embraced obliquely by the parietes of the vagina superiorly; into the cylinder of which it might be said to empty itself by a spout-like projection, forming what is called the mouth of the womb, as shown in the subjoined wood-cut, and still better in the Atlas. *a.* the interior of the body of the uterus; *b.* the cervix; *d.* the vagina; *c.* the vaginal extremity of the uterus. The inferior or vaginal extremity of



the uterus is pierced by an aperture, which in the virgin subject is a very small chink or slit; of which the longest diameter is

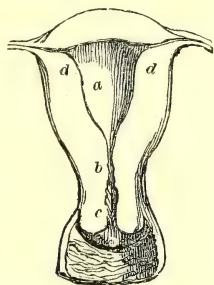


directed from side to side. The whole projection of this vaginal extremity of the organ has been whimsically denominated by some anatomists the *OS TINCÆ*, from its fancied resemblance to the mouth of the tench. In the centre of this projection is the small transverse slit or orifice which forms the actual entry into the interior of the neck of the uterus. By correct writers the entire projection is called the vaginal part or termination, and this central aperture in it exclusively, the vaginal orifice of the uterus. In earliest infancy the length of the uterine orifice is two lines; whilst in a virgin of twenty years of age it often does not exceed three. In a woman who has borne children its length is very uncertain, and varies indefinitely between half and three quarters of an inch. Moreover, in early age and in its ordinary virgin form this aperture is nearly closed. After the accession of the age of puberty, it is said to acquire a slight degree of patulence; and after the bearing of children it not unfrequently becomes considerably dilated and irregularly pouting and fissured. This same orifice is not situated precisely in the centre of the vaginal part of the uterus, but a little behind it. From this circumstance it might be expected, that in our vaginal examinations, this part being supposed to be in its natural state, we should find the anterior lip of the *os tincæ* proportionally thicker than the other. Such is actually the fact; and it is a fact of some importance in the deliberations of an accurate obstetric practitioner.

The portion of the uterus which projects into the vagina presents considerable differences as to its length in different subjects, varying probably from three-eighths to half an inch as to its anterior lip, and between half an inch and three quarters as to its posterior. In women who have borne many children, the vaginal part of the uterus is considerably more bulky and rounded than it is in its virgin state. Sometimes it is found more than ordinarily elongated, projecting perhaps more than an inch and a half from its natural attachment to the superior extremity of the vagina. In some rare cases it is said to have projected to the extent of eight or nine inches without having sustained any alteration of its natural tissue. We are indebted to the talented Bichât for the first notice of this remarkable irregularity. Assuming this fact, we might obviously encounter cases of extreme sexual irritations and distress from supposed descents of the womb, although the symptoms might be exclusively imputable to

the mere elongation of its vaginal portion. The author feels quite certain that he has often met with examples of cases of this description. It is observed by Murat, *Dictionnaire des Sciences Médicales*, tom. xxxi. p. 116, that Prof. Lallemand was aware of the existence of this state of the uterus; but that he considered it as an affection of the whole organ and not exclusively of the vaginal part of its neck, as subsequently demonstrated by Bichât. M. Roux, *Anatomie descriptive* par Bichât, tom. v., p. 282, says, that he had seen an elongation of the part in question, for which an eminent practitioner, under the impression that it was a case of incipient prolapsion, had advised the use of a pessary. Subsequently to the publication of this somewhat curious fact by Bichât, additional cases have been published in illustration of it by Gardien, Segard, and others; whilst records of analogous examples of it have been industriously sought, and perhaps somewhat too eagerly pointed out to the profession, in the writings of Littre, Levet, and Chambon.

On making an incision into the substance of an unimpregnated uterus, we may observe a triangular cavity. This will be readily seen in the wood-cut. *a.* the cavity; *b.* the cervix; *c.* the os uteri; *d. d.* the uterine extremities of the Fallopian tubes. It is



called the cavity of its body, in order to distinguish it from another which, in point of fact, is only a prolongation of itself, and is called the cavity of its neck. The cavity of the body is scarcely of sufficient dimensions to contain a Windsor bean. It is terminated superiorly and laterally by two minute orifices, which form the uterine apertures into the Fallopian tubes; and inferiorly by another and larger aperture, which has occasionally been rather ambiguously designated the internal orifice of the womb. The cavity of the neck of this organ is in fact a canal or passage, which is continuous from its vaginal orifice to the triangular cavity of its body. This tubular passage through the cervix is

unequal in its dimensions at different points ; being much narrower at both ends and hollowed out into considerable amplitude in the middle : a form which has been compared by some anatomists to a rolling-pin and by others to a wine-butt. Its anterior and posterior parietes are said so nearly to approximate as to be all but in a state of actual apposition. It is indeed altogether so narrow, that in the unimpregnated subject it is a matter of no little difficulty to transmit through it an instrument of the size of the interior of a double catheter. On laying it open we may observe on its internal surface a projecting median ridge, which in a great measure must have the effect of distributing it into two equal divisions. From the median ridge in question are determined towards either side, and somewhat obliquely upwards and in nearly parallel directions, a considerable number of inferior ridges, which in connexion with their parent central ridge give to the entire surface the appearance of a peculiar variety of arborescence, whence it has obtained the designation of *arbor vitæ uterina*.

We may also observe throughout the whole extent of the internal surface of the cervix of the uterus, and more especially in the neighbourhood of its vaginal orifice, a number of follicular bodies ; ascertained to be so many glands, of which the use is to furnish mucus for certain important purposes, incident to the functions of the organ, which will be more particularly adverted to and explained when we come to treat of those functions themselves.

OF THE PECULIAR ORGANIZATION OR STRUCTURE OF THE UTERUS.—The several varieties of tissue which enter into the composition of the uterus, are a serous membrane, which gives the greater part of it an envelope ; a peculiar mixture of constituent fibres usually called parenchymatous, which forms the greater part of its substance ; and a lining of its cavities and more especially that of its body which is called its mucous membrane. Added to these, and numerously distributed into every part of the organ, are blood-vessels, lymphatics, and nerves. The peritoneal investment of the uterus being produced from the posterior surface of the bladder, is reflected over a superior and anterior portion of the vagina, ascends along the anterior surface of the neck and body of this organ, doubles over and gives a covering to its fundus, descends along its posterior surface, to every part of which it gives its external coating, and is then propagated to the



rectum and to the posterior and lateral surfaces of the pelvic cavity. This important membrane, which as already stated envelopes the greater part of the uterus, is intimately adherent to its superior boundary or fundus. It is worthy of special remark, that it does not give a covering to the whole of the posterior surface of the bladder; inasmuch as the inferior part of that organ is intimately adherent by cellular membrane to an anterior portion of the uterus immediately contiguous and corresponding with it.

On removing the peritoneal serous membrane, which requires no very difficult dissection to effect, we come at once to the proper tissue of the uterus; which with the exception of its covering just described, and its mucous membrane or lining which remains to be described, constitutes the whole of its substance, which is of a dense fibrous texture, of a lightish grey colour, of considerable thickness and numerously supplied with blood-vessels. The closeness of its fabric is such as to give it a firmness of resistance almost equal to that of cartilage. Its structural constituency has been described as a homogeneous substance thickly interspersed with vascular and nervous tissue, and admingled according to some with great abundance of irregularly disposed muscular fibres, but in the opinion of others totally destitute of muscular tissue. Towards its shoulders and neck its constituent tissue becomes more densely felted together, and presents something of a lighter complexion than that of the body. At this part also its parietes seem to acquire some small accession of thickness.

The internal surface of the uterus is generally supposed to be lined with a tunic of a peculiar structure, which has received the designation of mucous membrane. This lining is, however, so intimately adherent to its parenchymatous substance, that it would really appear to be no more than a peculiar variety of propagation from the vascular part of its own tissue. There are, indeed, some physiologists who actually maintain this opinion; whilst it may seem to be not a little countenanced by some striking phenomena, which will be hereafter adverted to, incidental to the function of conception and its consequences. In the mean time, we may observe that the internal surface or lining of the uterine cavity is so intimately adherent to its natural bed, the proper parenchyma of its substance, as to appear to be really identified with it: nor is it, indeed, in any degree separable from

it, excepting by a tedious process of maceration and dissection.

The internal surface of the body of the uterus presents a different character of texture from that of the neck; the former exhibiting the soft and downy appearance of a piece of finely-dressed silk velvet; whilst the latter presents more of the usual character of a muco-cuticular structure, similar to the epithelium of the vulvo-vaginal surfaces.

The blood-vessels of the uterus are both numerous and largely developed in comparison to the size of that organ in its unimpregnated state. This predominance is no doubt provisional, and is to be placed to the account of its incomparably greater demands for arterial blood during gestation than at any other time.

The arteries of the uterus are derived from two sources. The uppermost, which enters at the superior angles of the womb, is derived from the aorta, and corresponds with the spermatic artery in man. In its route towards the uterus it dispenses very liberal supplies of arterial blood to the ovaries, and to the broad and round ligaments. The lower artery of the womb usually takes its origin from the hypogastric; but not unfrequently in common with the hæmorrhoidal from the internal pudic. Portal, *Anatomie Médicale*, tom. iii. p. 308. When the uterine artery takes its origin from the pudic, the trunk of the latter is seen to be of correspondingly large size, and especially developed during pregnancy, and during states of enlargement of the uterus from whatever causes. It is moreover of considerably larger volume, between the age of puberty and the period of cessation of the catamenial functions, than either before or subsequently to that period. The internal pudic gives out during its course of descent towards the spine of the ischium a very considerable branch, which is distributed upon the superior parietes of the vagina laterally and posteriorly; as also another of nearly equal size to supply an anterior and inferior portion of it, which it traverses to a great extent, meandering within its allotted boundaries so as to form half circles, and constantly inosculating with other arterial branches whether transmitted from its own trunk or from other sources. Some branches of these arteries are likewise determined to the neck of the bladder and the urethra, to the retiform plexus of the vagina, and corpus cavernosum clitoridis and to the labia pudendi and nymphæ. Of these, the last mentioned twigs anastomose numerously with branches from

the external pudic, epigastric and abdominal subcutaneous arteries.

The uterine artery, after having dispensed its numerous contributions, as already described, at length arrives by a very tortuous course at the neck of the uterus. It there divides into a great number of branches, which penetrate into the proper tissue of the viscus, distribute themselves transversely over its surfaces, and anastomose at or near the median line, both anteriorly and posteriorly. The remaining trunks of these arteries, after having reached the body of the womb, are finally resolved into a great number of branches, which are propagated from the sides of the organ towards the median line of both its anterior and posterior surfaces, as in the case of the cervical branches already adverted to, where like them also they form numerous inosculations with their fellows of the opposite side, as also with many branches from the spermatics. These superior branches of the uterine arteries, it should be observed, anastomose not only with their correlative branches of the opposite side, but also very numerous by inter-inosculations with ramules of the same side, as well as with corresponding branches of the spermatics. From this most ample supply of the means of arterial circulation in the uterus, its vessels at the same time being perhaps more tortuous than those in any other part of the body, with the exception alone of glandular structures, it must obviously follow that the parietes of that organ should in a great degree actually consist of tortuous arteries; and the more tortuous just in proportion as the organ might be least developed. It may be further added, that in proportion as these same arteries are of inferior size, they are by so much the more anfractuons. When small, the current of blood must find its way into them with greater difficulty, and therefore by its momentum prove less competent to effect their development; whereas during pregnancy the case is otherwise; for then the cavity of the uterus being more developed, its arteries must necessarily become less tortuous, and being by consequence less competent to resist the momentum of the streams of blood determined to them, they acquire a proportional increase of diameter; so that ramules scarcely visible in the unimpregnated state of the uterus attain in many cases at an advanced period of gestation a prodigious capacity. But independently of the numerous trunks and branches of the uterine



arteries now described, the art of injection has enabled us most readily to discover in the uteri of women who have died during the puerperal state or at advanced periods of pregnancy, the existence of a class of capillary vessels, which have been traced in such abundance as to have presented the appearance of reticulated vascular webs interspersed throughout the substance and interposed especially among the bundles of what many eminent anatomists have supposed to be muscular tissues of the organ. These capillaries have been observed to become more numerous as they approach nearer to the interior of the viscus, and still more so when they emerge upon its actual cavity: for there they meet together in such immense numbers as to become embodied into the form of a fine and closely-textured vascular membrane. Morgagni *De Sedibus et Causis Morborum*, Epist. 47. Caldani *Instit. Anatom.* part 4, p. 98. Each of the uterine arteries, before it enters deeply into the substance of the uterus, gives out a branch which goes off obliquely towards its adjoining broad ligament, between the two layers of which it insinuates itself, and by many branches anastomoses with correspondent ramifications of the spermatic artery of the same side, now become greatly reduced in volume from the previous expenditure of several large twigs upon the ovary. Some other branches are indeed transmitted to the ovary from the superior angle of the uterus both immediately from that part of the organ itself, and intermediately through the circulation of its contiguous round ligament. To these numerous ramifying arterial branches are united many branches from the spermatics, as also divers branches from the trunks of veins in the neighbourhood, forming altogether a vascular expansion having the appearance of an actually cellular tissue. These ultimate branches of the uterine arteries are seen to stretch themselves in all directions on the peritoneal surfaces in the neighbourhood, and not unfrequently to communicate by anastomosis with branches of the external and inferior pudic artery furnished by the crural.

OF THE VEINS OF THE UTERUS.—The veins of the uterus, as is common in other parts of the body, follow generally the course of the arteries. The more minute ramifications of those of the fundus and body are seen to unite as they approach the lateral boundaries of the organ, so as to form larger branches; whilst branches derived from the anterior parietes meet with corre-

sponding branches from the posterior, which thus uniting form still larger branches. These again in their turn receive large tributary accessions from the ovaries and from the other lateral appendages of the uterus. The hypogastric veins are formed by the union of numerous branches of veins from the lateral and inferior parts of the uterus, of several considerable branches forwarded to them by anastomosis from corresponding branches of the spermatics and of some smaller ones from the vaginal hæmorrhoidal, vesical and external pudics. All these smaller streams, running parallel with ramules and branches of arteries generally of the same names; receiving in their progress, at different stages, constant accessions, and variously coalescing and commingling their contents by numerous anastomoses, finally empty themselves into their respective trunks, the internal iliacs. These again, so much larger in the female than the male, unite their trunks respectively with those of the external iliacs to form the common iliac veins, whence their concurrent floods are conveyed by the ascending vena cava into the heart.

OF THE LYMPHATIC CIRCULATION OF THE FEMALE GENITALS.—Lymphatic vessels, invested by delicate tunics of peritoneum, are seen distributed on all the external surfaces of the uterus. Of these some may be observed to ascend rather tortuously from the neck and shoulder of the organ towards its body and fundus; whilst others are determined somewhat less tortuously in other directions over both its surfaces. Inferiorly they communicate with ascending branches from the vagina, and superiorly with the lymphatics of the ovaries and Fallopian tubes. These organs are supplied with lymphatic vessels in great abundance. The lymphatics of the internal genitals, after receiving innumerable accessions of charges from the visceral contents of the pelvis, ascend towards the central and lateral regions of the abdomen, accompanying or seldom deviating to any great distance from the tracts of the sanguiferous vessels. On reaching the third and fourth lumbar vertebræ, they pass under the mesentery, inosculate numerous with branches of lymphatics from the kidneys, and proceed together with them to empty themselves into the thoracic duct. But it is not only the external surfaces of the uterus that are thus abundantly supplied with lymphatic vascular tissue. On the contrary, numerous ramifications of the same order of vessels are found to be propagated to

the minutest portion and variety of its interior structure. Like the smaller ramules of arteries, they are more distinctly traceable in the cases of women who die pregnant or during the puerperal state. In advanced gravidity they may indeed be observed to be so much developed as to equal in diameter the barrels of large crow-quills, and even in some cases those of the smaller specimens of goose-quills. This statement is best confirmed by injections of the lymphatics of the uterus, in the states alluded to, with full charges of quicksilver. The proportional magnitude of the lymphatic system of the gravid uterus to that of other parts of the body, or even to itself in its ordinary state, is scarcely to be credited by persons who have not had opportunities of seeing successfully-injected preparations of it.

The lymphatic vessels of the vagina communicate with those of the uterus, as well as with those of the external organs of generation; the greater branches of all of them being continuations from those of the interior and superior parts of each thigh. The well-known fact of a direct communication between the lymphatics of the external genitals and the lymphatic glands in the groins is moreover practically demonstrable by anatomy, as it actually is demonstrated by daily pathological occurrences. The lymphatics of the uterus may be said to communicate with, and even to form a part of two systems of lymphatic circulations; of which, one is seen to accompany the distribution of the iliac arteries, and the other that of the spermatics.

OF THE NERVES OF THE UTERUS.—The nerves of the womb are derived from the renal plexus, from the inferior mesenterics, from the great intercostals, from the hypogastric, and from the ischiatic plexus. A knowledge of the several sources and intercommunications of the nerves of the uterus with those of other parts of the body will be found most importantly conducive to the interests of obstetric medicine, by enabling its practitioners to obtain correct principles on which to found the diagnosis of its multifold diseases, as also of diseases proximately incident to this organ, and diseased affections of contiguous viscera, and often of distant but consenting parts. Consult the following works:—J. Swammerdam, *Miraculum Naturæ de uteri muliebris fabrica*. Lugd. Batav. 1729. This little work contains several very useful plates, especially of the blood-vessels of the uterus. C. Drelincourt, *de utero*. Lugd. Batav. 1682. A. Nuck, *Adenographia*



*curiosa et uteri foeminei anatome nova*, Lugd. Batav. 1692. F. Ruysch, *Tractat. de musculo in fundo uteri observato, antea a nemine detecto*. Amsteld. 1726. A. Vater, *De musculo novo uteri*. Amsteld. 1727. J. U. Buchwald, *De musculo Ruyschii in fundo uteri*. Haffn. 1741. J. G. Roederer, *Icones uteri humani observationibus illustratæ*. Gotting. 1759. J. C. Loder, *De musculo uteri structura*, Jena. J. G. Walter, *Betrachtungen über die Geburtstheile des weiblichen Geschlechtes*, Berlin, 1776. T. Simson, *Observations concerning the placenta, the two cavities of the uterus, and Ruysch's muscle in fundo uteri*, in the *Edinburgh Medical Essays*, vol. iv. no. 13. J. G. Weisse, *De Structura uteri non muscosa sed cellulosa et vasculosa*. Wirtemberg, 1784. C. H. Ribke, *Ueber die Structur der Gebärmutter*. Berlin, 1793. J. F. Lobstein, *Fragment d'anatomie physiologique sur l'organisation de la matrice*. Paris, 1803. O. F. Rosenberger, *De viribus partum efficientibus generatim et de utero speciatim, ratione substantiæ musculosæ et vasorum arteriosorum*. Halle, 1791. J. C. G. Joerg, *über das gebärorgan des menschen und der Saugthiere im schwangern und nicht schwangern Zustande*. Leipsick, 1808. G. C. Titius, *de uteri structura et ejusdem functionibus*. Wirtemberg, 1795. Mad. Boivin, *Mémorial de l'art des accouchemens*. 1824. Ch. Bell on the muscularity of the uterus, *Medico-Chirurgical Transactions*, vol. iv. p. 335, 1813.

OF THE LATERAL APPENDAGES OF THE UTERUS.-- Under this description are included the round and broad ligaments of the uterus, the communicating tubes or passages between the interior of the body of the organ and the abdominal cavity, and the glandular bodies attached to it on either side by short ligamentous tissue, called the ovaries. We have already had occasion to remark that the uterus is maintained in its situation by adhesions of cellular tissue, by ligaments, and by diverse productions of its own exterior peritoneal tunic. After giving a covering to the greater part of the uterus, the peritoneum is especially produced to furnish a similar investment for what are called its ligaments. The peritoneal tissue is so slender and exquisitely delicate in texture, that even when folded, as we find it to be in its principallateral prolongations from the womb, it can scarcely be expected of itself to furnish that organ adequately secure fastenings. The fact really is, that the ligaments of the uterus do not

exclusively consist of peritoneal tissue. On the contrary, the peritoneal covering of the womb itself is lined, throughout its whole extent, by a sub-tunic consisting of an essentially different material. This more immediate integument of the uterus, which may be called its capsular membrane, is of considerable thickness and closeness of texture, and is intimately adherent to every part of its surface, but especially to its fundus and along the tract of its median line. As to the precise nature of its constituency, it should seem that the point has not yet been absolutely determined. By some it has been described as being cellular and membranous; and by others, as fibrous and muscular. Whatever be its intimate texture, there can be no doubt of its being well calculated to give to the organ which it invests a uniform security against any partial or irregular development of its parietes; and such, indeed, might be its only use were it exclusively a capsular investment of the uterus: but that is not the fact: on the contrary, it presents most substantial prolongations in the direction of several duplicatures of the peritoneum, which have been described as so many ligaments of the uterus; and it is in a great measure to these productions of the sub-peritoneal tunic of that organ that the ligaments in question are indebted for their competency to give it adequate sustenance and security of attachment during all its manifold changes of volume, position, and other circumstances.

Of the different ligaments of the uterus the most considerable are those which are called its anterior or round ligaments. They are produced from the lateral, superior, and anterior part of the body of the womb, a little below and anteriorly to its lateral angles. From thence, in the form of large roundish tissues, invested, like the uterus itself, by a peritoneal covering, they proceed in an antero-lateral direction, behind the umbilical arteries, and before the hypogastrics, until they reach respectively the inguinal rings through which they effect their passage, to be expanded into numerous fascicules of their proper tissue, and finally to distribute themselves by corresponding attachments upon the subcutaneous cellular membrane of the groins, mons veneris, labia pudendi, and the upper part interiorly of the thighs. The structure of these suspensory ligaments of the uterus, like the proximate investment already described of that organ itself, does not seem to be positively determined. From their office

they are properly enough called ligaments ; but they bear but little resemblance to such tissues in other parts of the body. "They are of a whitish, dense structure, flattened, narrower at their middle part than at their extremities. Longitudinal fibres are to be distinguished in their substance, which were for a long time believed to be muscular, but which appear to be nothing but condensed cellular tissue. Many tortuous vessels creep among their fibres. Fallopius asserts that these cords are enveloped by a kind of cremaster muscle ; but I have never been able to see this disposition." Cloquet's System of Anatomy by Knox, Art. 2976, p. 818. Their principal use is to sustain the uterus in its proper situation in the pelvis : a fact sufficiently well attested by the circumstance that annoying sensations, aptly characterised as DRAGGING PAINS at the groins, are invariably found to accompany prolapsions and some other malpositions of that organ. Sir Charles Bell supposes that they are especially intended to give due inclination forward to the uterus, and to direct it in its ascent in the abdominal cavity during pregnancy ; purposes which no doubt they serve, but which are by no means their exclusive uses. "In the gravid uterus, both the broad and round ligaments considerably alter their position, appearing to rise lower and more forward from the womb than in the unimpregnated state. This is in consequence of the greater increase of the fundus of the womb in proportion to that of the lower part of it." Bell's Anatomy of the Human Body, vol. iv. p. 232. The reader may obtain a pretty correct idea of the origin and general appearance of these ligaments by a reference to the Atlas, plate ix. at e and c of the first and second figures ; and plate xii. B, at k of the first.

OF THE ANTERIOR AND POSTERIOR LIGAMENTS OF THE UTERUS.—The anterior ligaments are two small folds of the peritoneum, which are reflected from the posterior surface of the bladder to the anterior surface of the uterus. They are seen to include some few slender and compressed bands of cellulo-membranous tissue, which appear to be prolongations of the capsular tunic of the womb. They are only visible when the two organs are slightly separated. By raising the uterus a little above the level of its ordinary position, and inclining it an inch or two backwards, they will then be made to appear between it



and the bladder, under the form of two inverted arches. See pl. xii. B. of the Atlas, fig. 1. at m. The posterior ligaments are two other duplicatures of peritoneum, likewise containing prolongations of the capsular tunic of the uterus. They arise from the middle and lateral parts of the neck of the uterus behind, stretch along each side of the flooring of the posterior part of the pelvis, send out very few, if any, adhering fibres to the rectum, on each side of which they pass externally, and go to be inserted, where they become strongly attached, to the anterior and lateral surfaces of the sacrum. They are suitably supplied with blood-vessels, lymphatics, and nerves. Besides being probably intended to co-operate with other fastenings to give a general security of position to the uterus, they seem likewise especially calculated to determine the particular position of that organ relatively to the direction of the vagina; whence results the angle formed between the uterus and the vagina, at the part where they are mutually connected. See plate xii. B. fig. 2, at the small letter n. where they are very correctly represented.

OF THE BROAD LIGAMENTS OF THE UTERUS.—The whole of the body and fundus of the womb, together with the greater part of its neck, is included within an investment of peritoneum. But this peritoneal covering is not a mere capsule to the uterus and commensurate only with its boundaries, but produced, as we already have had occasion to observe, in all directions, either singly or in mutually-adherent folds, to connect it with its contiguous organs and with the pelvis. The lateral prolongations instead, however, of being produced singly, like those which are determined from its anterior surface to the bladder and from its posterior surface to the pelvis behind, are observed to be duplicatures from the entire line of their departure from the sides of the womb; and instead of being expanded as connecting media over contiguous organs and surfaces, they are produced only to a certain distance, where they are suddenly interrupted in their course, and where they are finished off into totally different forms of structure. It deserves however to be remarked, that this description does not apply to the whole of these lateral prolongations of the uterus; it being indeed the fact that very considerable expansions of them are really propagated to the lateral parietes of the pelvis to serve the end of ligaments. Hence it is that the uterus occupying nearly the centre of the

pelvis, together with its large lateral prolongations, including the round ligaments and such parts of what are called the broad ligaments as actually serve the purposes of ligaments, may be seen to divide the pelvic cavity into two distinct spaces or chambers. It is not, therefore, true that the broad ligaments are so totally devoid of claim to the designation of ligaments, as has been lately very generally represented. If indeed ligaments be cords or bands of whatever structure used for fastening parts to parts, then are certain portions of the membranous tissues in question truly ligaments.

OF THE FALLOPIAN TUBES.—These are minute passages or canals included within the folds of the lateral peritoneal prolongations of the uterus just described. They directly communicate at its superior and lateral angles with the triangular cavity of the body of the womb. They are enclosed immediately within the boundary of their folded parietal tunics; their external covering being of course produced from the lateral angles of the uterus, externally, and their lining membrane from the mucous lining of its cavity. Intermediately between their peritoneal tunic and their mucous lining there is interposed a middle membrane, of which the precise nature is not clearly determined. That it is fibrous and even muscular may not appear improbable, when we consider the actions which the entire tubes must be presumed competent to perform, and the uses which they are known to subserve. It is indeed asserted that in women of a robust complexion two layers of muscular fibres have been seen to enter into its texture, viz. an external one formed by longitudinal fibres, and an internal one, consisting of circular fibres. Meckel's Manual of Anatomy, French edition, article 2410, page 600.

The length of the Fallopian tubes is variously represented by different authors. The fact is that their dimensions in this respect are really very different in different subjects; not to add that much of this diversity may be fairly attributed to influences resulting from repeated gestations, age, states of the general and functional health, and many other circumstances. Their average length may, however, be stated with sufficient accuracy at between three and four inches. Their diameter differs greatly in different stages of their length. At their uterine orifices, which are bounded by small ringlets or borders of much firmer texture than that of the parts immediately adjoining, they are often so

small as scarcely to be visible. In most cases, however, they are of sufficient diameter to admit the blunt or glandular end of a hog's bristle. Commensurately with the uterine half of their length they continue to be very narrow, their diameter not exceeding half a line, and scarcely equalling that of the vasa deferentia at their commencement. They then usually acquire the size of a small goose-quill; though in this respect also we meet with great varieties. "I have often," says Portal, *Anatomie Médicale*, tom. v. p. 502, "found the Fallopian tubes so contracted that I could not pass a bristle through them, although their extremities were amply dilated."

A little beyond the central distance from their uterine orifices they become slightly tortuous: but the amount and locality of these curves are very uncertain. At some little distance from their abdominal apertures they again become contracted, but soon to become expanded into their respective pavilions and trumpet-mouthed terminations. The entry into, course, and interior appearance of these tubes are exceedingly well represented in the several figures, 1, 2, 3, of plate ix. of the Atlas. At a in fig. 1 is exhibited a black point in the centre of a section within the distance of about three quarters of an inch from the uterine aperture, of each tube. That point shows a bisection of the minute passage itself. At the part marked b in fig. 2, is seen something of the tortuousness of its course: the small b in fig. 3, is intended to give an idea of what is called its pavilion. Its pavilion is continuous with the sudden and trumpet-like expansion of its abdominal extremity. This extremity is free, floating, and bounded by fringes of carunculous-looking tonguelets. Of these fimbriæ some one or two may be generally observed to be longer than all the rest.

The fimbriated termination of each tube has been distinguished by authors by the whimsical appellation of *MORSUS DIABOLI*. It is asserted by some of the writers on these subjects, that the same part in a state of expansion is usually found reverted, that is, presenting its concave surface towards its neighbour the ovary of the same side, which is situated immediately behind it. The author is unable to confirm this statement, inasmuch as he cannot recollect having met with a single example of the disposition in question, in the course of his dissections or post-mortem examinations. It has been likewise represented, in consequence probably of comparisons instituted between



the supposed cellular and cavernous texture of some parts of their parietes and the corpora cavernosa of the clitoris and of the penis, that like them also they experience a state of erection during the sexual congress. It does not seem possible to devise any experimental means by which those hypothetical assumptions could be either controverted or confirmed. The intense pain which of course would attend any experiments for ascertaining such points might be expected to put an end to all functional erections almost as speedily and as certainly as death itself. A part of one of these tubes is represented as laid open to show the longitudinally fibrous appearance of its cavity, fig. 3 at b and along the tract of the bristle.

The blood-vessels of the Fallopian tubes are branches respectively of the spermatic arteries and spermatic veins. These vessels are very numerous distributed, especially upon their fimbriated extremities, where many ramules having the appearance of veins may be actually seen. Descriptions have likewise been published of similarly abundant distributions of lymphatics upon the same organs.

**OF THE OVARIES. OVARIA. TESTES MULIEBRES.**—The ovaries are two ovöid bodies of a glandular structure of a whitish-grey colour, and of about the size of a pigeon's egg, slightly flattened in the direction of their anterior and posterior surfaces. They are situated in the lateral parts of the pelvic cavity, behind the Fallopian tubes, and suspended from the fundus of the uterus, a little behind its lateral angles, by short ligaments, which are covered with much cellular tissue and a coating of peritoneum, produced from the surface of the uterus and reflected from the Fallopian tubes. The figure and volume of these bodies vary in different ages. In the foetus they are very slender and long. See a beautiful representation of them as apparently reposing on a bat's wing, taken from a child that died a few hours after



birth. Atlas, pl. viii. fig. 1. The same is shown in the wood-cut. After birth they acquire a more rounded form. In the adult female after puberty they possess their largest size, and their surfaces appear plump and smooth. Atlas, plate ix. fig. 2,

at a, and plate xiii. fig. 3. At the age of between forty-five and fifty they begin to shrink ; and thenceforward to advanced old age they gradually diminish in size ; their constituent structure becoming at the same time indurated, in some parts fissured and more and more wrinkled and uneven, until at length they are reduced to a volume of less than half their magnitude during the period of their most perfect development.

Each ovary has two surfaces, an anterior and a posterior one. They may be said also to have two edged boundaries or borders ; one superior, which is slightly rounded and free, and the other inferior, which is adherent to a produced pinion or lapelle from the broad ligament. It has, moreover, two extremities ; of which one is external and more remote, and to which one or more of the principal fringes of the Fallopian tube of the same side is not unfrequently seen adherent ; and the other an internal one attached to a narrow slender chord of a ligamentous texture, which serves to connect the ovary to the superior and lateral part of the uterus immediately behind the origin of the Fallopian tube. This ligament has been supposed by some anatomists to include a canal or passage of communication between each ovary and the cavity of the uterus. But the fact is that no such passage exists, and any appearances of fistulous communications between the one organ and the other will be easily ascertained to have been empty tubes of sanguiferous or lymphatic vessels. The ovaries are covered externally by a tunic of peritoneum, which is produced to them, as already stated, from the fundus and body of the uterus posteriorly, and from the broad ligaments anteriorly. Immediately within this tunic there is another investment consisting of a whitish fibrous membrane, very solid and close textured, THE TUNICA ALBUGINEA OF AUTHORS. These two coverings of the ovaries are so intimately adherent the one to the other, as scarcely to admit of being separated. The internal one is perforated on the inferior border of the gland by numerous vessels which go to distribute themselves upon the proper substance of the organ.

On cutting into the parenchymatous tissue of the ovaries, it would appear to be chiefly “ composed of cellular and vascular lobules of a greyish colour gorged with a great quantity of a slightly-coloured fluid. In the midst of these lobules are lodged small vesicles to the number of from fifteen to twenty, of the size of a millet-seed, and formed by a very delicate pellicle, in which

is contained viscid fluid, of a reddish or yellowish colour. Around these vesicles the vascular ramifications are more numerous and more minute." In adopting from Cloquet, Knox's translation, p. 819, the matter of the quoted passage, the author should state that the vesicular bodies are generally of larger size than millet-seed, and frequently charged with a perfectly transparent fluid. "Their volume," says Meckel, art. 2408, p. 600, "is not the same in all, and they appear to be developed in succession some before the others. The larger ones are nearly three lines in diameter. They are more abundant near the circumference of each ovary than in its centre. Their number varies from eight to twenty in virgins." By referring to a section of an ovary as represented in fig. 2, plate xii. of the Atlas, the reader may form a pretty accurate idea of the vesicular corpuscles now describing. The beautiful expansion of vascular structure immediately below the displayed ovary, and stretching between it and the Fallopian tube, is that part of one of the broad ligaments called, as applied to both ligaments, *ALÆ VESPERTILIONIS*.

"When we hold a section of the ovarium betwixt the eye and the light," observes Sir Charles Bell, "we see a great many pellucid vesicles; and if we examine the ovarium of an animal killed in full health, and particularly in the season, we shall observe these ova to be in all varieties of states of preparation for impregnation. Some small and pellucid, and yet only discernible in the thick outer coat by having a greater degree of transparency; others which have taken a slight tinge of bloody colour from vessels striking into them; and if the section be made after a minute injection, the vesicles will be seen coloured in the proportion of their maturity; some without a speck of colour, others tinged, one or two loaded with injection, and some vascular and particularly prominent. In very young girls the substance of the ovarium is whitish and very soft; the surrounding membrane is thick, and the round corpuscles scarcely discernible, and no irregularities or any of those bodies called corpora lutea are to be seen on the surface. But as the subject advances in years, the little vesicles begin to appear, and when about ten years of age, or just before menstruation, the ovarium is full of ova of various sizes, and some of them more matured and forming an eminence upon the surface. In the adult woman the



substance of the ovarium which appeared as a uniform homogeneous mass in the foetus is become a cellular and vascular bed, giving nourishment to those numerous vesicles or ova."—Bell's *Anatomy of the Human Body*, vol. iv. p. 238.

The ovaries are indebted for their principal supply of blood to a large branch transmitted to each of them from the spermatic arteries; and they return their blood to the emulgents or vena cava by corresponding branches of the spermatic veins. Their lymphatics are a part of the general system of lymphatics which supply the uterus, with which they abundantly communicate as well as with those of the Fallopian tubes. They convey their contents to those of the mesentery and the kidneys. These bodies derive their nerves from the renal plexus. Casp. Bartholin. de Ovariis Mulierum. Gvern. Dethard. Motz. Dissert. Inauguralis, de Structura, Usu et Morbis Ovariorum. Vesalii, De corporis humani fabrica, lib. 5, cap. 15, p. 459. Fallopii Oper. Omn. tom. i. p. 106. Venet. 1606. Stenon. Acta Haffniæ. De Ovo et Pullo, et Obs. Anat. Spectant. Ova Viviparorum, obs. 89 et 98. Regner de Graaf de Mulierum Organis Generationi inservientibus, tom. i. p. 171. Johan. Dominic. Santorini Observ. Anatom. cap. 11. De Mulierum Partibus. Swammerdam. De Miraculo Naturæ Epistola. Halleri Elementa Physiolog. tom. vii. p. 108. Mich. Etmulleri Epist. Problem. de ovario novo. Amst. 1715. Sebatier, Traité Complet d'Anatomie, tom. ii. p. 409, et sequent. Fernandi Leber. Prælect. Anatom. p. 352. Exposition Anatomique de la Structure du Corps Humain, Amst. 1752, tom. iv. § 603, 604, p. 62. Mayer's Beschreibung des ganzen menschlichen Körpers, vol. v. p. 226, 227. I. G. Walter, Tabulæ Nervorum Thoracis et Abdominis. Berolin. 1783. Cruikshanks on the Absorbents. Hunter's Plates of the Gravid Uterus.

OF THE FUNCTIONS OF THE UNIMPREGNATED UTERUS.—The uterus does not appear to perform any functions, or to be subservient to any direct uses, during infancy and childhood. Until the age of puberty, it merely occupies its allotted space in the pelvic cavity, simply sustaining for the benefit of contiguous viscera the office of an intermediate organ, and such vital actions as are indispensably necessary to the preservation of life in its own tissue. On the accession of puberty, however, it becomes the subject of certain changes and developments, in consequence of

which, and in connexion with consenting and co-operating influences from the ovaries and other essentially sexual appendages, it arrives at the full possession of its natural attributes. Of these attributes one of the most remarkable and important is the function of menstruation, to the consideration of which the author has now to request his reader's attention.

OF MENSTRUATION. MENSES. MENSTRUUA. CATAMENIA. FLORES MULIEBRES. PERIODS, AND MANY OTHER SYNONYMS.—Menstruation may be defined to be the functional evacuation of a fluid having the appearance of blood from the genital organs of the human female, which commences at puberty, returns at regularly-measured intervals during the possession of the faculty of fecundation, is intermitted during pregnancy and lactation, and finally ceases in common and contemporaneously with the capacity for reproduction. It is a function to which it is probable the female of our species has been subject in all countries, in all ages, and in all states and stages of civilization, notwithstanding some fanciful representations to the contrary which from time to time have been indulged in by writers.

It commences at the age of PUBERTY. But the date of that period is subject to great varieties; whilst the term itself which expresses it has reference to an interesting assemblage of circumstances inseparable from the perfect development of the female constitution.

Among the earliest indications of the approach of puberty is a sort of sense of numbness and of fulness about the groins, accompanied in many cases by slight pains about the joints, which in this country are rather characteristically called GROWING PAINS. Certain sensations of a peculiar kind, but scarcely to be designated sexual, are usually felt about this time, at or in the neighbourhood of the external genitals, where small whitish prominences present themselves, which are to become the seats, innumerable, of a glandular apparatus for the secretion of the hairy covering by which the pubes and the pudendal surfaces of the adult of both sexes are usually more or less concealed and protected. This also is the period of the remarkable change which takes place in the human voice; in that of the male of its key or tone, but in that of the female, and that not always striking, only of its melody and music. The young of both sexes are also observed to acquire at the same epoch a considerable approximation to their allotted and ultimate

complement of stature; it being observed that an increase, especially of height, not unfrequently takes place during the immediately previous months, even of SEVERAL INCHES. But the parts of the body which experience the greatest increase of development on the accession of puberty, are the generative organs, OF BOTH SEXES. The most characteristic signs of the advent of puberty in the male are perhaps the growth of the beard and the powers of secreting and emitting semen; and in the female, the eruption of the menses and the development of the mammæ. To the date of the occurrence of these several indications, however, there are occasional exceptions. In many cases, for example, in the male subject, the beard does not appear immediately on the attainment of the other privileges of the period; and the other mentioned faculty has occasionally either not developed itself at all, or but very feebly, until after the lapse of some years subsequently: whereas, in a few individuals of the other sex, the catamenial function has never appeared, or been long retarded; while the mammæ have never received any accession of volume whatever, either at the age of puberty or at any subsequent period.

The period of puberty, as it presents itself in the human species, occurs considerably sooner in the female than it does in the male; but the earliness or lateness of its accession in both sexes seems not a little to depend upon the influences of climate and of modes of life. In hot countries, and among the inhabitants of wealthy cities and towns, who live at their ease and in habits of plenitude and luxury, it occurs much earlier than in colder regions, where children are exposed to the contracting influences of low and chilling temperatures, and in country villages and remote districts where they are liable to be stunted in their physical developments by the penury and scanty means, and sometimes even by the absolutely destitute circumstances of their parents. Hence the fact, for the reality of which we have the evidence of most accurate and competent reporters, that in the more southern countries of Europe girls arrive at puberty at or before the age of eleven years, and boys at that of thirteen or fourteen; whilst in the colder northern regions the same indications of maturity are not attained till the ages respectively of fifteen and seventeen. This difference in the time of the accession of puberty in the two sexes is no doubt ascribable to the more extended stature, to the firmer texture of the fleshy parts,



and to the more resistant and massive solidity of the osseous system of the male subject ; in consequence of which the progress of his developments must be more gradual, and their completion protracted to a later period than those of the female ; distinguished, as she manifestly is, for the greater brevity and slenderness, delicacy and succulence, of her frame. In the more fervid climates of Asia and Africa, the women arrive at puberty at ten years of age, and not unfrequently at nine. Some years ago an English gentleman resident at Malta, who there occupied a distinguished post under the Government, favoured the author with the fact, that the native girls of that island sometimes marry before they attain even the latter age, and generally within a year or two afterwards. It is a matter of history, that the celebrated prophet of the Moslem faith consummated his marriage with one of his wives " when she was only eight years old." Prideaux's *Life of Mahomet*, p. 30, 1718.

We are on the other hand informed that in Sweden, Norway, and a great part of Russia, menstruation does not often take place till the more stayed ages of seventeen or eighteen. In reference to this latter fact it might seem open at least to a presumption that such absence of alacrity to engage in a function so essential to reproduction, as in the sequel we shall find menstruation to be, might have an unfavourable effect upon the population of the countries of the north. The facts of history are, however, directly opposed to such a conclusion ; and the explanation seems to be, that in those countries, the duration of the function comprehends a more extended series of years ; that the women are strong and well constituted ; and that they therefore are competent to menstruate more regularly and during a longer portion of their lives than the women of the south : whence it results that in the end they are found more prolific, and that under favourable circumstances as to the means of living, they become the parents of a healthier and more vigorous offspring. But let us reverse the picture. M. Virey, in his article on climate, in *Le Dict. des Sc. Médic.* observes that the burning climates of the more southern countries of Europe are well known to produce " strongly-marked nervous temperaments and great precociousness of puberty, and that the women of those countries have scarcely grown out of their infancy before they become mothers. But, mark the consequence : just like those perishing flowers of a day, which the ardour of a summer's sun

causes to open in the morning, and in the evening to wither and die, they soon lose their fecundity, and pass rapidly from the morning of their lives towards its decline and close." This fact is well understood by the English inhabitants of India, who all send their children to England, in order to avoid the known effects of the climate of India in the production of precocious developments; but developments too premature to be permanently compatible with vigorous health, and almost certainly inductive of an early death.

The physical developments incident to the accession of puberty are almost always accompanied by the earlier and the more or less successful efforts of her characteristic function of MENSTRUATION. That function is, indeed, so constantly an attendant on the other condition, that some of the most important attributes of the latter are often presumed to be of doubtful existence until attested by the presence of the former. In the order of functional developments incident to a healthy female on the accession of puberty, menstruation may indeed be said to be the first which should be considered as decidedly sexual. Its first manifestation is announced by certain symptoms, which usually present themselves as precursory or attendant phenomena. The mammæ, already considerably developed, become sensibly fuller and firmer. The young subject experiences a sense of weight and tension, as also frequently of heat in the hypogastric region, a slight pruritus in some cases of the pudendal surfaces, and much general lassitude. A sero-mucous discharge in small quantity for the first time is found to distil from the vulva. This earlier form of the function may possibly be repeated for several successive periods. In the course, however, of not many months the character of the discharge becomes more decidedly sanguineous. But in this respect it is liable to considerable variations during the few earlier months subsequent to the commencement of the function; in some cases it happens that, after having once or repeatedly occurred, it is suspended for an uncertain period of time, to be again resumed, most frequently with more regularity, and finally to be permanently established.

In addition to the physical changes, of which some of the principal have been already noticed, and many more might have been enumerated, as being usually attendant on the accession of the age of puberty, the fair adolescent becomes the subject, at

this, her “spring-time of nature, the season of pleasures,” as beautifully denominated by the great French naturalist, of an entire class of moral affections, of which she has never before felt the influence. Secretly conscious of her new attainments, and perhaps not insensible to their accompanying infirmities, the young sufferer, in sustaining the novel and frequently very painful symptoms incident to the catamenial function during the months immediately consequent on its first appearance, is often observed to be exceedingly pensive and reserved, and moreover uncomfortably addicted to the habits of sighing and blushing; the one without any obvious cause, and the other on the most trifling occasions. But these symptoms do not occur in all cases, and in some others with less frequency and intensity, so as in a great measure to escape observation. By a few they are not at all felt, when the function is of course duly instituted and executed without any very striking antecedent announcements.

The catamenial nîsus is indeed sometimes attended by symptoms of much severity, such as exquisite headaches, painful rigidities of the muscles of the neck, aching pains of the loins and thighs, a sense of heat and fulness in the hypogastric region, occasionally hysterical affections, and, in short, such an assemblage of sufferings as to amount to a very morbid performance of the function. A certain class of more than usually irritable women are observed to become subject, during the presence of the period, to the most singular caprices and the most whimsical and extravagant tastes; or, as asserted by others, to the most pitiable depression of spirits, or to the most tempestuous paroxysms of passion. In a small proportion of cases there is a feverish acceleration of the pulse, accompanied by hæmorrhages from the nose and other outlets of the body. Bordeu, *Recherches sur le Pouls*, tom. i. Sometimes the pulse is hard, velocious, irregular, and attended with distressing palpitations of the heart.

THE QUANTITY of secreted fluid furnished during each period of menstruation is different in different subjects. These differences are no doubt ascribable to a thousand influences, which it would be scarcely possible to enumerate; but principally and summarily to those of climate, states of health, individual temperament, the amount of the means and diverse modes of living.

With respect to the influence of climate in this matter, we meet with no great discrepancies of opinion amongst practical



writers ; it being something more perhaps than a general presumption that women menstruate less abundantly in hot than in more temperate regions, and somewhat more abundantly in the latter than in the coldest countries of the north. This difference is attributed to the counter-balancing influence of the cutaneous function of perspiration. "In hot climates, says Buffon, "where the TRANSPIRATION is greater than in cold countries, the catamenial secretion is less." *Hist. Nat. de l'Homme*, tom. iv. p. 491. "In general," Maigrier observes, *Dict. Médicale*, tom. xxxii. p. 386, "the women of the south have their periods less abundantly than those of the north ; but we may remark that those who live under the equator, as well as those who inhabit the most northern countries of the globe, have scarcely any traces of them. With respect to the former, their fluids are so volatilized by the excessive heat of their climate as to become insufficient to furnish the means of a menstrual secretion ; and as for the latter, the rigour of their cold is such as to produce similar results by constringing all their natural filters."

The author is very doubtful whether M. Maigrier, in respect to the total absence of the menstrual function in the extreme northern latitudes, has not considerably over-stated his case. Women of nervous and irritable temperaments, otherwise sometimes called bilious and melancholic, menstruate abundantly, sometimes profusely ; whilst, on the contrary, in those of robust and well-steadied constitutions the secretion usually appears in sparing quantity, as also frequently in those of feeble and cachectic health, who begin to menstruate late, and who perform the function with difficulty and pain. Females who live in towns, and who have frequent opportunities of engaging in the public pleasures of gay and fashionable society, exposed to all the temptations incident to the possession of whatever means may be calculated to exalt the imagination, to inflame the passions, and to abuse the appetites, are in most cases the subjects of precocious, profuse, and morbidly irregular menstrual discharges. In the rear of the same class of females, and therefore subject to the same evil results, are the idle, the unfortunate, and the dissipated in all ranks of society. "All the arts," says Gardien, "such as music and painting, including that of design, excite vividly the imagination. Music especially, cultivated too exclusively and at too early a period, developes an extreme sensibility. It was to an imprudence of this kind

that we have heard attributed the death, on the approach of puberty, of both the daughters of Grétry, the celebrated musician."

Women of naturally strong passions, all other things being equal, are said to menstruate more abundantly than those of a colder temperament, and such as are indifferent to the privileges of connubial life. The evacuation is moreover less abundant with the average of women who live in the country than with a large proportion, as we have already seen, of such as inhabit great cities and towns; not only because the atmosphere of the country is more uncontaminated and salubrious, but because also its inhabitants are usually more regularly and usefully employed, and comparatively exempt from the profligate vices of great societies.

The produce of the catamenial function becomes ordinarily less abundant with advancing life; and the same thing is true, but on a smaller proportional scale, in the instance of some mothers of numerous offsprings. A first gestation has sometimes improved the character and habits of the function; but there is reason to fear that such an advantage is not generally to be calculated upon. On the contrary, it may be admitted as an axiom founded on an extensive observation of the phenomena of the function, that if it be performed imperfectly, painfully, or otherwise irregularly, during the first few years of the menstruating part of a woman's life, it will continue to be so performed throughout the remainder of it.

The reader will perhaps observe that no average quantity has yet been named for the produce of each menstruating period. The peculiar character or mode of performance of the function is indeed such as to make it obviously impossible to arrive at any positive conclusion on that point. The author of the treatise on the diseases of women, usually attributed to Hippocrates, states it as amounting to two hemines; measures, both taken together, supposed by Dr. Friend, the learned but intolerably vapid historian of our profession, to have been equal to about eighteen English ounces. The concurrent opinions, or rather conjectures, of most modern practitioners, have graduated its average quantity, as it presents itself in the more temperate climates of Europe, at an amount of between four and six English ounces. De Haen had recourse to a most ingenious method to attain an accurate knowledge of the quantity of fluid furnished by each period of the

secretion, and he pretty clearly ascertained that some women sustain a loss of three ounces, and others four or five; that some few menstruate to the amount of half a pound; but that it is exceedingly rare indeed for any to reach the quantity of ten ounces excepting as an effect of uterine disease.

In consideration of the universality of the function which we are engaged in discussing, and its co-extension with all ages and countries and tribes of people, it seems scarcely necessary to notice a speculation, a play of the fancy, a mere abortion of a doctrine which has attempted to maintain that menstruation is not a natural and an essential function of the human female. Our prescribed limits will not permit us to wander into this field of fiction. The hypothesis is, however, stated at some length in the author's former publication on the Princip. and Pract. of Obst. Med. vol. i. p. 231, as transferred from the pages of its propounder. *Système Physique et Morale de la Femme*, p. 118, par Pierre Roussel. Paris, 1809.

OF CERTAIN IRREGULARITIES INCIDENT TO THE COMMENCEMENT, DURATION, AND TERMINATION OF THE MENSTRUAL FUNCTION IN THE HUMAN FEMALE.—It has been already seen that the period of commencement of this function in the human female is determined by that of the accession of those changes and developments in her person and constitution which are inductive and constituent of her puberty. In some rare instances the first menstrual appearance presents itself at the very commencement of these developments; but more frequently not till after the lapse of several months subsequently. In speaking of the peculiar enlargement of the breasts as an indication of puberty in the adolescent female, Aristotle asserts, that “when these are raised two fingers in breadth, then in most females the menses commence.” *Aris. Generat. of Animals*, B. 1, ch. 20. In the native females of temperate climates it was correctly stated above, that the developments in question usually present themselves between the ages of thirteen and fifteen. In all countries, however, there are considerable varieties as to the date of this period; whilst moreover in most there have been presented extraordinary examples of the precociousness of its occurrence. See cases in the 4th edition, p. 236 et seq.

THE DURATION OF THE FUNCTION or the term of years during which the human female is actually liable to the influence and power of the menstrual function is not precisely the same in all



women. Something of variety in this respect may readily be supposed and counted upon on the score of the almost endless diversities of circumstances, both physical and moral, to which women are exposed. In this climate, and in ordinary circumstances, as to constitutional health and means and modes of living, the average duration of the term in question is about thirty-one years and a half, usually represented indeed for the sake probably of round numbers, as being thirty years. The author, however, founding his conclusions upon very numerous practical data, entertains no doubt that a greater number of women are subjects of this function during thirty-two years of their lives, than of such as are only subject to it during thirty or even thirty-one years. We have indeed on record many instances, and examples will doubtless occur to the recollection of experienced practitioners, of women who have ceased to menstruate at forty, and even at five or six and thirty years of age, without consequently becoming the subjects of any of the ailments usually imputed to the influence of suppressed menstruation. On the other hand, a considerable number of women continue to menstruate till their forty-seventh, forty-eighth, and forty-ninth years, and a smaller number even to their fiftieth year. The average of these years may indeed be considered as forming the extreme natural boundary of the function. There are, however, a very few cases recorded of protraction of the power for an indefinite number of years beyond the limits of which nature has thus in ordinary been pleased to impose upon it, and which the author thinks more respectful to place to the account of her sovereign power and pleasure, than with some writers to deny their existence in the face of much reputable evidence, and to ascribe their actual phenomena, presumed in that case of course to be only simulated, to the presence and influence of some unascertainable malady.

OF THE ANALOGIES OF THE MENSTRUAL FUNCTION.—Under this head of subject may be placed three varieties of analogies of the catamenial function; viz. 1. Certain periodical discharges from non-uterine parts or surfaces, sometimes occurring in the human female herself. 2. Periodical discharges of blood from the genitals and from other parts, occasionally experienced by individuals of the other sex. 3. The produce of the sexual œstrum in the females of many species of inferior animals.

The periodical discharges in the human female, from sources

remote from the uterus, have, by reason of their supposed substitution for the unestablished, suppressed, or imperfectly performed catamenial function, received the designation of vicarious menstruation. In the greater number of cases properly referable to such a class of diseased actions, one or other of these forms of disturbance of the menstrual attribute may be usually observed to be either directly or indirectly a cause of, or, at least, a very early attendant on the patient's malady. It therefore almost always happens in such cases, that their history, peculiar localities, or some other special and characteristic circumstances incident either to their origin or progress, are of a nature to direct professional attention to the state of the uterus and its functions, as a principal and proximate source of the disorder to be combated.

Among the numerous varieties of vicarious or supplemental hæmorrhages now under consideration, and there is not one natural opening or mucous membrane, or scarcely a point of surface of the body, which has not furnished outlets for them, those which have had mucous tissues for their sources have usually been represented as the most frequent. Stahl was of opinion that hæmatemesis and hæmorrhoids present themselves vicariously in the absence of the catamenial function more frequently than hæmoptysis. If the author might determine this point by the number of each variety, which he has encountered in his own practice, whether public or private, he would say that, both in London and in Yorkshire, the examples of the latter exceed those of the former in nearly the proportion of two to one. It seems probable that the celebrated Professor of Halle may have allowed his mind to be somewhat warped on this subject by the great importance which he attached to the influence of the vena portæ in the production both of the menstrual evacuation and of vicarious hæmorrhoids. These latter discharges are indeed sometimes as abundant and as regularly periodical as those of the catamenial function itself. But more frequently they are less abundant or less regular, and in a very great majority of cases they are both less regular and less abundant than those of menstruation.

Next in frequency to the pulmonary and gastric hæmorrhages, including under the latter those both from the stomach and the larger intestines, we perhaps encounter that from the bladder or hæmaturia. It is probable that this variety has often occurred

without being detected, on account of the proximity and almost identity of the extreme outlets respectively from the bladder and the uterus.

In delicate and strumous subjects, congestive and vicarious determinations are usually observed most frequently to affect the mammæ; these organs being very liable in them to injuries of texture from careless management during lactation, and even from slight accidents, and thus to be rendered peculiarly predisposed to become the subject tissues of such determinations. Supplemental hæmorrhages from ulcerated nipples or other parts of the breasts, are therefore much more frequent accompaniments of suppressed than of non-established menstruation. It seems also not unreasonable to believe that they are more frequently affections of poor and laborious women, who are liable to greater exposures during the menstrual period than of ladies in easy circumstances, who have an unlimited command of the means of comfort and protection.

In the greater number of vicarious hæmorrhages, the prognosis may be considered upon the whole as favourable. When the form of the discharge is analogous to the action of transudation, and its source a mucous membrane like those of the rectum and the bladder, it is obvious that its periodical recurrence may be sustained for many years, without greatly endangering the life of its subject. Even hæmoptysis, when established as a substitute for menstruation, has been known to co-exist with retention of the catamenia for upwards of twenty years, without being accompanied by the alarming symptoms frequently incident to the same affection under other circumstances.

It sometimes happens that vicarious hæmorrhages become unnecessary in consequence of the establishment or restoration of the natural function. To promote that indication should indeed be the great aim and object of our art in the professional management of such cases. In recent and scarcely yet established cases, we may sometimes succeed in the attainment of that object. We shall however more frequently accomplish it when the patient is young and well balanced as to her other functions, than when advancing towards middle age, or when reduced in constitutional strength by the duties and anxieties of life. In the latter case, on the other hand, we may generally have the satisfaction of anticipating that, at the ordinary period of the final cessation of the menses in other women, nature will most



probably come to our assistance, withdraw her counter influences, or perhaps accomplish for herself all that may be desirable or necessary in behalf of our patient even without our aid.

It being upon the whole the fact that vicarious hæmorrhages are usually much less dangerous than corresponding hæmorrhages from other causes, and that they are often to be regarded more in the light of annoyances and inconveniences, than as formidable and dangerous maladies, it obviously follows that their removal should not be attempted by powerfully repressing means suddenly and unskilfully administered. Their sudden suppression has occasionally been productive of the most fatal consequences. For curious examples of vicarious menstruation, and still more curious speculations on the subject, the reader may consult the following authorities : Marcelli Donati Hist. Med. lib. 4, cap. 19. Schenkii, lib. vi. obs. de menstr. p. m. 680, et sequent. Amati Lusitan, cent. 2, cur. 17. Ant. Beneveni, c. 41. Fabric. Hildani, cent. 3, obs. 12. Greg. Horstii, part 2, obs. 33. B. Timæi Observ. Medic. lib. 4, c. 12. Hoffman. Disquisit. Pathol. p. 230. Hippocrat. Aphor. 33. Cels. lib. 2, c. 8. Bartholin, cent. 1, hist. 16. Harder. Apiar. obs. 82. Sal. Alberti de sudore cruento. Dodonæi Hist. vitis vinique, p. 110. Linder. Act. Lit. Suec. an. 1723, p. 432. Helwig. obs. 140. Blancaard. Collect. 1, n. 49. Valisner. Oper. p. 305. Aretæi, lib. 2, c. 2. Borelli Hist. 48, cent. 1. Ruysch. Advers. 3, n. 3. Meibom. de mot. sang. p. 72. Malpigh. cons. 40. Stahl. de insolit. mens. viis. Raulins. p. 148. Kerkring. obs. 85. Muralt. Chirurg. Geschichte, p. 74, n. 13. Heuremann. Oper. Chir. tom. iii. p. 234. Bordeu, p. 189, 469. Kerkring. observ. 85. Zacuti Praxis, Med. Admirabilis, lib. 2, obs. 101. G. v. Swieten. tom. iv. p. 426, 427. Salmuth. cent. 3, obs. 36. Schurig. Hæmatolog. p. 256, 257. Schwenck. Hæmatolog. p. 130.

It has often been remarked by writers on hæmatology, that periodical determinations of blood to diverse organs and hæmorrhages from different outlets of the body, are phenomena which are by no means peculiar to women ; but that men also, although much less frequently, are nevertheless occasionally subject to them. This forms the second example of analogy above referred to the menstrual function, as it presents itself naturally in the human female. In this case it obviously amounts only to a morbid simulation of *some* only of the attributes of that function.

For the purposes of growth and of the development of parts, it

is to be presumed that all young subjects, not yet arrived at their destined complement of stature and maturity, are in one sense the subjects of a plethoric state of their sanguiferous system. Subserviently to these purposes, we may observe that the powers of assimilation and nutrition are accordingly more vigorous in young people of both sexes than in persons of middle or advanced age. To supply the wants of the former class of subjects, provision is required to be made not only for their mere subsistence, but likewise for their daily increasing stature, augmented capacities of expenditure, and for developments of all kinds. When we arrive at the perfect maturity of our organization, it is naturally to be expected that a pretty equal balance would be struck between the vital operations necessary to furnish new supplies, and those incident to the expenditure of such supplies upon the sustenance exclusively of the living body, then of course presumed to be quite finished and completed in all its parts.

It may indeed be admitted that such is probably the fact as a general principle, founded upon a broad average view of the universal history of our species. Experience however informs us, that it by no means is absolutely so in its application to individual persons and to all classes and communities of mankind. We find on the contrary, that under many varieties of circumstances inseparable from the ordinary influences of civilization, however factitious many of those influences may be allowed to be, that there are numerous exceptions to what perhaps might be acknowledged to be a general rule of nature in this respect. Individual examples indeed of sanguineous overfulness in persons of both sexes and almost of all ages, are familiar occurrences in the practice of extensively occupied medical practitioners. Moreover, to support a perfect balance of all the actions of the living body, would be to suppose an equally perfect conformation of all its parts, an absolute harmony of all its possible movements, founded upon the perfect and equal competency of every organ and of every fibre in each organ, to perform in the best manner and always to continue so to perform their allotted functions; which would be a supposition totally at variance with all experience.

With these more general views, let the reader, if he pleases, connect some of the inferences which of late years have been drawn from the discoveries of general anatomy and physiology, as to the probable pathological results of original varieties of construction and of consecutive develop-

ments of different parts of the human body. Add to these considerations the unknown and therefore incalculable influences of hereditary predispositions, founded as they probably are in most cases upon hereditary imperfections of conformation, as also the diseases both of function and structure of certain organs which supervene during life's progress, no matter from whatever cause, and we shall have no great difficulty in accounting for the existence of the sanguineous congestions and hæmorrhages which we occasionally encounter as well in male as in female subjects. The periodicity which has distinguished many of these hæmorrhages in man, may indeed be considered as somewhat remarkable. It is probable that the descriptions which we find recorded of some of them, may be on this point a little exaggerated. However that may be, there is no disputing, and there can be no reasonable motive for disputing, the general fact. Some very curious cases, principally however distinguished by diversities of sources and other unessential circumstances, are recorded by the older writers. The following are references to some of the most interesting of them : Marc. Donatus de Hist. Medic. Mirabil. p. 411. Mich. Scot. Physiogn. cap. x. D. Martin Schurig. Parthenolog. et Cons. l. xxiv. p. 195. Gisbert. Voetii Disp. Select. part. 2, p. 53. Ephem. Germanic. dec. 1, an. 2, observ. 192, et an. 4, observ. 44 et 69, dec. 11, an. 1, observ. 70. Th. Bartholin. cent. v. hist. 33. Zacuti Prax. Medic. Mirabil. observ. p. 110. Reyes in Camp. Elys. Jucund. Quæst. xlvii. n. 16, Dodonæi Hist. Vitis Vinique, p. 109. Beniven. de Abditis. &c., c. iv. Ephem. Natur. Curios. tom. viii. obs. 176.

Of the THIRD ANALOGY to the menstrual function above adverted to, viz. that of the œstrum in some females of inferior animals, it is not necessary at present more than simply to notice the fact of its existence, although it must be acknowledged to be very slight. Such, however, as it is, it will necessarily offer itself to our consideration when we shall have to speak of the final cause of the catamenial function. It is indeed by reason almost exclusively of a supposed identity of their final cause, that any analogy between the sexual œstrum of the lower animal, and the menstrual evacuation of the human female, can with any plausibility be contended for or admitted. The female of no inferior animal, whether quadruped as mentioned by Aristotle, Generation of Animals, B. 1, ch. 20, p. 230, Taylor's edition, or even of the ape species, notwithstanding the strong statements to that effect of



some careless and mendacious writers, can be said to menstruate, in the proper sense of the ancient expression, "after the manner of women."

OF THE PERIODICITY OF THE CATAMENIAL FUNCTION. — The very name of menses, in common with several other designations, which have been given both in and out of our profession to the catamenial function, are so many intimations that IT RETURNS PERIODICALLY EVERY MONTH. Some differences of opinion have arisen as to the actual duration of the menstrual month; some believing it to be identified in duration with a month of four weeks or twenty-eight days, which is nearly the measure of a lunar month, and others that it is a month of thirty days, which is a nearer approximation to the duration of a solar month. It is the impression of most of the women of this country that the catamenial month is a month of four weeks. Among the nations on some parts of the coast of Africa, the menstrual periods are called the moons. Many physicians and philosophers have considered the influence of the moon as actually the cause as well as a measure of the periodicity of the function.

Haller considers the period as being equal to a solar month. In his general account of the phenomena of this function, that eminent writer observes, that "after the first menstrual evacuation, the young subject often experiences an interval of some months before another period succeeds; but that gradually the time to be occupied by it is reduced to a solar month; so that a female who should have her menses on the first day of May in a given year, shall again on the first of May for many successive years experience the return of them: seven or eight days being occupied by the discharge, there are two or three and twenty of an interval of freedom from it; and thus is the menstrual period absolved." Haller, *Element. Physiolog.* tom. vii. lib. xxviii. § 4, p. 145.

It was the decided opinion of Dr. Denman, who had paid considerable attention to the subject, that the average period of menstruation is that of a lunar month. The same was the opinion of the late Dr. Sims, than whom perhaps no physician of any age formed his opinions more independently of the authority of others.

It is a statement of M. Desormaux, *Diet. de Méd.* tom. xiv. p. 181, that he has known many ladies who noted in their almanack each return of their menses, and that their returns coin-

cided with the corresponding days of solar months : it is, however, to be observed, says the writer, that in the instance of a great number of these returns, they anticipate the solar month by two or three days, which therefore reduces the period very nearly to an equality with a lunar month.

But we often see other and more considerable anticipations of the natural period. There are, indeed, many women who are in the habit of experiencing the returns of their menses after intervals of from twenty to four-and-twenty days ; and there are even some who menstruate twice a month. In one case of this kind, the discharge was abundant during eight days of each period. With other females, on the contrary, the duration of the menstrual period has been known to exceed thirty days, and even six weeks and two months. Linnæus reports, *Flora Lapponica*, p. 324, that he saw some women in Lapland who menstruated only once a year. M. Desormaux, already quoted on this subject, notices the opinion of a physiologist, who distributed menstruating women into two classes ; of whom the one menstruate during the first eight days of each month, and the other perform the function during the first eight days of the latter half of the month. The author thinks that he is enabled from the results of his own observations and inquiries, to state positively that this notion is not in correspondence with the actual facts of the function ; and he confidently believes that women menstruate quite indifferently as to dates or portions of months, whether solar or lunar, and quite independently of all artificial divisions of time, as well as of any supposed planetary influences with which the function may have been theoretically connected.

It should be observed, that when the time or term of a woman's menstruation has been perfectly established ; whether it exceed or fall short of the time usually allotted to the period, or whether it be in correspondence with the ordinary duration of that period, it very seldom happens that it sustains any change, or even that it is capable of being changed by any interference of art. It is obviously therefore of great moment to the future interests of the subject, that its type shall be of the natural or most desirable duration from its commencement, or, at least, from the date of its perfect establishment.

When once established, it usually continues to observe its adopted type during the whole of the menstrual life of its subject, excepting indeed during the natural interruptions which it has to

sustain from the influences of gestation and lactation. These two functions are ordinarily but unequally causes of its suspension. The author believes that, with respect to the former, its influence is universal and without exception. He is well aware of the existence of many asserted and recorded exceptions to this principle. Mauriceau, tom. ii. observ. 388, p. 322; observ. 378, p. 314; Append. observ. 19, p. 13. Ephem. Germanic. an. 3, 1672, p. 555. Perfect's Cases in Midwifery, vol. ii., case 80, p. 71. Comment. Bononiens. Institut. Scient. &c. vol. i. p. 152. He is also aware of statements, that menstruation has presented itself FOR THE FIRST TIME AFTER CONCEPTION, and of others in which it occurred regularly during successive gestations and at no other times. With all those facts distinctly before him, he is nevertheless decidedly of opinion THAT GENUINE MENSTRUATION HAS REALLY NEVER EXISTED DURING GESTATION. It will be seen in the sequel of this article, that the same organic structure which nature employs to effect the elimination of the catamenial secretion during the unimpregnated state of the uterus, is employed, during the earlier part of gestation, to secrete a fabric essential to the new function in which she has become engaged, and that the vessels so concerned become so intimately connected with the fabric in question during the whole of gestation, as not to be at liberty to furnish the material of the menstrual discharge, which it is their peculiar office to secrete, and to supply in the unimpregnated state of the organ. It is moreover known that the orifice of the womb is hermetically sealed during gestation; in consequence of which, no description of fluid, whether the produce of the menstrual function or any other, can escape out of its cavity without the previous disturbance of the strongly adhesive plug by which nature closes up its orifice. To persons who are familiarly acquainted with the nature of the security which is thus given to the contents of that organ, it is scarcely necessary to insist on the incompatibleness of such a state of things with the performance of the natural and proper function of menstruation during pregnancy.

The coexistence of the menstrual function with LACTATION is by no means an extraordinary occurrence. On the contrary, every member of our profession practising midwifery is constantly meeting with examples of it. The women who are more frequently the subjects of it, are those who are most susceptible of impregnation; the susceptibility in these cases being so great



that impregnation takes place notwithstanding the presence of the counteracting influence incident to the performance of the sister function of lactation. The same class may also be observed to be more than usually prolific. They produce their children in quick succession, and are therefore of course competent to give birth to a greater number whilst the power of reproduction and its attendant appetencies are vigorous. In the absence, however, of any extraordinary susceptibility of conception, impregnation will frequently occur during suckling, if the period of that duty be UNREASONABLY PROTRACTED. It is not uncommon for some females in dependent circumstances, and even for some others who may be more prudent than poor, to calculate on the operation of the general law of nature in these matters, and to persist in suckling their children for very protracted periods, with a view to prevent or at least to diminish the chance of another impregnation. It is, however, pretty well known how frequently these dexterous expedients are defeated. Women living well, and doing little or nothing in the way of bodily exercise, and with more probability still, if in a situation to practise abstinence from the means of impregnation, are exceedingly liable to become the subjects of menstruation during suckling. Hired wet-nurses are remarkable examples of this fact.

It is probable that the coexistence of menstruation and lactation is more frequent in certain temperaments, families, and classes of women, than in others. The author is disposed to think that the hale, joyous, and often laborious women, who are so numerous imported into this country from the Sister Island, experience the return of their menses during suckling more frequently than English women of corresponding classes. Other things being equal, the combination of the two functions is moreover more likely to happen during the earlier years of the menstruating portion of a woman's life, than at a more advanced period of it. It is not an uncommon notion that the capacity for lactation is improved by the supervention of menstruation; the milk being supposed to be FRESHENED by every recurrent period of the latter function. This notion, which may be very well calculated to promote interested purposes, is not only unwell founded but directly the reverse of the truth. The accession of menstruation whilst suckling is seldom or ever known to fail to produce a tumult in the gastric functions of the child.

OF THE SOURCE OF THE CATAMENIAL SECRETION.—The subject-material of this function, as has always been known, is a produce of some part of the internal genitals. It having been observed, that the human female was occasionally subject to slight sanguineous discharges during gestation, it appeared not unreasonable to ascribe a qualification for the performance of the function indifferently both to the uterus and the vagina; whilst some writers of no mean celebrity have maintained, that it is furnished exclusively by the vagina. Santorini *Opusc. Medic.* 4, n. 3. It has not been till of late years that its origin from the interior of the uterus has been positively ascertained. In cases of prolapsion of that organ, numerous opportunities during the present and latter part of the last century have occurred, and been made available, for determining the matter at issue: and the result of these opportunities has been a decisive establishment of the fact, that the uterus is the source of the healthy and proper sexual secretion. In the dissection of women who have died suddenly or otherwise during the presence of menstruation, it has been repeatedly observed, that the fine villous tissue of the interior of the body of the uterus has been strongly charged with the scarlet coloured material of the secretion; whilst any portion of the same fluid which might be seen to soil the natural complexion of the vaginal surfaces could be easily and perfectly removed by the gentlest wiping.

In some cases of congenital absence of communication between the uterus and the vagina, the catamenial fluid has been secreted at the proper age; but from the mechanical impediment to its escape by the natural passages, it has been retained within the uterine cavity, until artificial means have been had recourse to for giving it an outlet. When such cases have presented themselves and been neglected or misunderstood, the accumulations of the repeated monthly products of the function have occasionally become prodigious. When globular or tubular pessaries have been employed without the intention of having them removed during menstruation, it is always a precaution made use of in their introduction, that one end of the tube, or a part communicating with the interior of the instrument, should be applied in such a manner as to correspond with the uterine aperture. The menstrual fluid has consequently distilled into it from the orifice of the uterus, trickled through its tube or interior

hollow of whatever form, and been seen to escape at its inferior extremity. In cases of suspected uterine diseases, which have been made the subject of examination with a speculum matricis during the presence of the catamenial discharge, which has of late years been frequently practised both in this country and on the Continent, the subject-material of the secretion has been distinctly seen to supply its tiny globules from the interior of the orifice of the uterus. It has been moreover stated, that the menstrual fluid has sometimes presented itself at the abdominal wound consequent on the performance of the Cæsarean operation. Desormaux.

From such facts, notoriously and repeatedly observed, it is now nearly the universal opinion that the uterus is the source of the catamenial evacuation. By some writers however it is still believed, that the vagina is sometimes and in some peculiar cases made a vicarious secerning organ for its elimination. This inference has been deduced from the fact already noticed of the occasional occurrence of a periodical discharge from the genitals during pregnancy, similar to that of menstruation. On the evidence of most respectable testimony, it has been admitted that cases of such discharges have now and then occurred; although it has never happened in the experience of the author to have met with an example of them. The late estimable Dr. Sims, who was a physician to the Maternity Charity during a period of between forty and fifty years, actually denied their existence, excepting in the form of manifest hæmorrhage. Dr. Denman, chap. v. sec. 1, makes use of the following unequivocal language: "Some menstruate while they give suck, and others are said to menstruate during pregnancy; but of this I have never met with an example." The precise fact of the dispute will probably remain undetermined until chemistry shall have established a difference, which there is little doubt it some day will, between the chemical or elementary constituency of the genuine produce of the menstrual function and that of other discharges, whether periodical or otherwise, which are sometimes furnished during gestation.

Another question which has been agitated by physiologists, is the structural character of the supplying or secerning tissue or part of the organ by which the menstrual secretion is furnished. The uterus consists of several varieties of tissue; as arteries, veins, lymphatics, and glands. Which or how many of these may be employed as functionaries in the production of the cata-



menial secretion, may perhaps be allowed to be a question of more than simple curiosity. At all events it has been discussed by authors with some industry, if not with corresponding success.

In favour of the hypothesis, that the catamenial evacuation is a produce of the veins of the uterus, the remarkable fact is cited of its obvious analogy to that of hæmorrhoids, which is known to have the hæmorrhoidal veins for its source, and also to that of the lochia, which it is presumed is furnished by some part of the venous tissues of the uterus. Highmor. *Nath. M. D. Corp. Human. Disq. Anatom.* p. 100. Völter's *Hebammenschul*, p. 280. Jenty, *Demonstrat. Uteri*, etc. tab. 6.

It has been professed that the so-called menstriferous veins of the uterus have been seen enlarged in their diameters in women who have died during the catamenial period; and also gorged with venous blood in persons known to have been the subjects of suppression of the menses. The orifices of the menstruating vessels, it has been moreover maintained, are broader or more patulent than they could well be expected to be on the supposition of their being terminations of arteries. It was, perhaps, a modification of this theory that suggested the existence of a particular form of structure, set apart for the performance of the menstrual function, consisting of dilated cellular appendices to the veins, but situated intermediately between the veins and the arteries. This suggestion is said to have first occurred to Mr. Thomas Simson of Edinburgh. *Simson's System of the Womb*, p. 34, 64. Edinb. 1729. The actual fact however of the particular form of structure, assumed by Simson's hypothesis, has not been proved by the more accurate researches of modern anatomy. One of the best written disquisitions on the subject of the venous sinuses of the uterus being the organ of elimination, both of the menses and the lochia, forms the principal contents of an essay on the anatomy and pathology of that organ by Dr. Abr. Vater, published by Haller, in the fifth volume of his *Disputationes Anatomicæ*.

Boerhaave naturally enough recognised in the menstrual secretion a striking illustration of his favourite doctrine of *ERROR LOCI*; by which the reader will immediately perceive that he would most readily account for all the phenomena of the menstrual function. In the development of that celebrated doctrine, the menstruating organ would of course at once be identified with the more delicate and minuter portions of the sanguiferous system

of the uterus, which in the absence of the menstrual period are employed to transmit only transparent blood, a part of that fluid which, at a time long subsequently to that of Boerhaave, was believed to consist of particles infinitely smaller than those of the red globules. On the accession of the menstrual period the theory supposed that these finer vessels, being indefinitely susceptible of enlargement by an adequately distending force, became sufficiently capacious to admit the red particles, in common with the other elementary ingredients which constituted the extraordinary tides which periodically rushed upon them, and which found their way into them, and eventually worked their passage through them into the interior of the uterus. *Errorum loci esse menses; sanguinem nempe in locum humoris tenuioris succedere, dilatatis sensim vasculis ut sero primum flavo pateant; deinde rubro cruori.* Haller *Element. Physiolog. lib. xxviii. § 7*; Boerhavii *Prælect. Academic. t. v. part 2, p. 59.*

Meibonius once asserted, *Mot. Sang. No. 48*, that he positively saw the capillary outlets of arteries pouring out their menstrual contents, "*menses fundentia*," and that he had been able actually to introduce bristles into them. Assuming the lactiferous ducts to be arteries, their analogy in office to those of the apparatus employed for the elimination of the menses, induced Deidier to conclude that the latter must also consist of arterial tissue. Haller *Element. loc. citat.*

Another example of analogy, viz. that between the phenomena, respectively, of menstruation and those of certain sanguineous discharges from the intestines, which latter, it is said, may be successfully imitated by the forcible injection of thin and suitably coloured fluids into the neighbouring arteries, has been quoted as an argument of considerable weight in favour of the theory which attributes the produce of the catamenial function to the agency of the ultimate arterial ramules of the uterus. It has been moreover stated, that it is much more easy to conceive of such an amount of congestion as might be presumed necessary for the due supply of the menstrual function taking place in the arterial tissues of the uterus than in those of its veins: and it is added, as a final and pretty conclusive argument in support of the same theory, that the structural character and distribution of the arteries in question exhibit so peculiar and striking a resemblance to the convolutions of glandular tissues in other parts of the body, as to leave no reasonable doubt of their being destined for an

analogous office, the functions of which we accordingly find they actually perform. Correspondently with this undisputed fact, it seems to be all but absolutely proved, that the produce of the menstrual function is not a purely sanguineous evacuation, but more strictly a result *sui generis* of a specific secretion. For these reasons, and others of a similarly speculative character, rather than in consequence of an adequate number of minute and conclusive investigations, instituted with the view and well calculated to determine the question, it seems to be the most general opinion of the physiologists of the present day, that the menstrual evacuation is THE PRODUCE OF A SPECIFIC ACTION OF THE ARTERIES OF THE UTERUS.

OF THE EXCITING CAUSE OF MENSTRUATION. — Another question incident to the history of the catamenial function, which has been more frequently than successfully agitated by writers on these subjects, is that of the occasional cause of the function. It is a fact, inseparable from its history, that it is an attribute exclusively of the human female. But why it should have been made an exclusive function of one sex, and why in its influence over that sex it should have been so limited in its extension as to affect only one amongst the almost countless species of existing animals, are problems which have not yet been satisfactorily solved. In the absence of facts, we have propounded for our consideration a pretty ample choice of ingenious hypotheses.

OF THE INFLUENCE OF THE MOON CONSIDERED AS THE OCCASIONAL OR EXCITING CAUSE OF MENSTRUATION. — It has been already seen that an entire revolution of this function occupies upon an average a period of time very nearly, if not precisely, equal to that of a lunar month. It has hence happened that many physicians and naturalists, both of ancient and modern times, have been induced to infer from the fact of so remarkable a coincidence, the production of the one by some inexplicable but scarcely questionable influence of the other. Planetary influence over the persons and interests of the inhabitants of this world formed, indeed, no inconsiderable part of the creed of Paganism from the earliest ages; whilst even Christianity itself, liable, as of course it was upon its first promulgation, to become tainted by the leaven of previously existing superstitions, has not been able, even to the present day, to divest itself totally of a similar but unessential article of its faith. Hence in some medical writings of a comparatively modern date, we



find the existence and types, together with the exacerbations and remissions of many diseases, ascribed to the agency of lunar influence.

To a consideration of these facts should moreover be added that of the influence or supposed influence of the moon in the production of those extraordinary and periodical determinations of the mighty fluids of the ocean, called tides. Why should not so prodigious a power be deemed a competent exciting cause of the smaller, but equally periodical tides of the human body?

This theory of lunar influence in the production of the phenomena of menstruation is however liable to many and weighty objections. Experimental observations prove that the various relations of the moon to the earth's surface are attended with no perceptible determinations or changes of situation of fluids when exposed to its action in artificial and graduated tubes. The column of mercury for example, in the barometrical tube, shows no sensibility to any ascribable influence of the moon. Were this influence the actual exciting cause of the menstrual function, its effects would be uniform and universal upon all its subjects resident in the same latitudes, and therefore at the same time precisely similarly exposed to its agency; whereas the fact is, that women are known to menstruate indifferently at all ages of the moon. If, again, we suppose the agency of the moon to be really the cause of the menstrual tide or flux, as it has been called, we should naturally expect that the same position of that body would at least, in its relation to the same woman, be always productive of the same effects, and that no counter influence from any other quarter could ever by any possibility disturb it. But is this the fact? What is the history of the function in this respect? Why no such law prevails. The function, on the contrary, is capable of being disturbed as to the date of its periods by all sorts of influences. A familiar example will at once suffice to illustrate this statement.

Suppose in a young and vigorous female, a regularly menstruating subject, that the secretion becomes suddenly suppressed, in consequence of an imprudent exposure to the action of cold; and this suppression, as frequently happens, to be attended by febrile and otherwise formidable symptoms. In that event, she would probably be induced to apply for the more or less early assistance of the medical attendant of her family. By bleedings,

and other active measures, we will further suppose that gentleman to succeed in the restoration of the suspended function, but not till after the lapse of six or eight days subsequently to the suspension. Let, it however, be understood, that the function is eventually perfectly re-established, and the patient perfectly restored to her former state of health. Suppose our patient's constitution to have been at all times most delicately and regularly respondent to the law of the function; that, as in the hypothetical case of Haller, the first appearance of the secretion had always presented itself on the first day of her menstrual month from the commencement of the function to the date of its suppression. On the supposition of the moon being the cause of the function, on what day and in what week of the next, and all subsequent months, should the ordinary appearances of the function present themselves in future? Why surely on the first day of the first week, as in former times. That, however, would not be the case. The date of the next appearance would not correspond with those of its former periods; but with that of its restoration by the well devised and promptly-applied measures of the medical attendant.

This fact, if well founded, and its accuracy admits of no dispute, is at least a proof positive, that the influence of the moon on the catamenial function, if it at all exist, must be of such a feeble nature as most easily to succumb to the operation of other influences; such other influences being competent not only to counteract and to disturb, but apparently to subvert, and summarily to dispense altogether with any supposed previously-existing influence of the moon. In the same circumstances as the moon, moreover, should be the function in all women equally and similarly exposed to its influence. But do we observe that such is the fact? Women on the contrary, notwithstanding the uniformity of the supposed influence, are subject to all possible varieties in the duration, commencement, termination, and modes of performance of the function, as well as its effects upon other functions, physical and moral, upon the general health of its subjects, the quantity, colour, consistence, sensible qualities, and all other appreciable conditions of the discharge. Aristotle on the Generation of Animals, B. iv. chap. 2. Galen De dieb. secretor. cap. 11. Ricard. Mead, M.D. De Imper. Sol. et Lunæ, etc, Lond. 1746. Stahl. Theoria Medic. p. 386. Habenberg. Nov. Act. Erudit. Suppl. t. i. §. 7. Shebbeare's Pract. of Physic, p. 261.

OF THE SUPPOSED EXISTENCE AND INFLUENCE OF A FERMENTING PRINCIPLE AS THE OCCASIONAL CAUSE OF MENSTRUATION. — This notion, for it scarcely deserves the designation of a theory, seems first to have suggested itself to the physiologists of the seventeenth century. Writers have differed however as to the nature of the principle with which they have proposed to connect the remarkable power which they have ascribed to it. They have also not agreed on the essential points of its source and the locality of its residence; some having limited both its origin and locality to the uterus, and others having proposed to bring it, for the accommodation indeed of that organ, from other and in some cases distant parts of the body. In one school it was deemed to be a produce of the hepatic system, and therefore of bilious origin; and in others a sort of excrementitious residue of all the glandular operations of the body; whilst by a third party it was presumed to be furnished by the cellular tissues investing the kidneys, ovaries, uterus, &c. Zendrini *Cort. Chin.* p. 74. Charleton *de Caus. Catam. et Uteri Rheumatism.* De Graaf. *De Mulier. Organ. Generat. inservent.* p. 132. Gandolph. *Hist. Roy. des Sciences*, 1707, n. 9. Some writers of the last century connected it, under different modifications, with the passion and with the organs subservient to the female attribute of reproduction. Santorini *Opuscula*, art. *de catamen.* Vieussens *Nov. System.* p. 10, 11. *Ephemerid. Curios.* Dec. iii. an. 4, append. Among the speculations of these later writers, the most fanciful, and at all events the most laboured, is that of M. Le Cat, which the reader will find recorded at ample length in the *Old Journal de Médecine* of Paris, tome xx. p. 311; and transferred, without much abridgment, to our former publication on *Obstetric Medicine*. See *Princip. and Practice of Obst. Med.* vol. i. p. 261, 4to edition.

OF CONSTITUTIONAL PLETHORA CONSIDERED AS THE OCCASIONAL CAUSE OF MENSTRUATION. — On the first suggestion of this theory to account for an apparently sanguineous discharge, some of the more familiar examples of accidental hæmorrhage would seem ready instantly to present themselves to the mind: and it being a fact, that the greater number of accidental hæmorrhages are either ascribable, or at all events ascribed, to an overfulness of the sanguiferous system, the doctrine of a sexual periodical plethora would thus introduce itself to our acquaintance under circumstances of obvious advantage. From



the greater softness and succulency of the softer tissues, and the greater lightness and slenderness of the more solid parts of the female body, compared with those of the corresponding structures of the male, it would seem at least a plausible presumption, that the fibro-vascular tissues which contain the several fluids of the human body, and those fluids themselves, should enter into the composition of the appropriate structures of either sex in very unequal proportions. The general mass of blood being the great reservoir whence must be derived the materials for the manufacture of all the other parts of the fabric, it would almost necessarily follow that the female should be competent, by the condition of her sex, to supply these materials in a proportionally greater quantity than the male. The characteristic difference in the general appearance of the persons of the two sexes, presenting themselves more strikingly, DURING THE PERIOD in the lives of each, intermediate between puberty and the commencement of old age; it might not appear unreasonable to conclude that an excess of the component fluids in the person of the female should especially distinguish that period. It is a very remarkable fact that this supposed excess of fluids, and therefore probably of the mass of blood itself in the female over those of the male, is in healthy subjects of the former sex a coexistent and a measure of their exclusive function of menstruation. It is also another remarkable fact that the human female is qualified for her great and exclusive office of reproduction, only during the period of the more marked excess of her fluids over those of the male, and for the most part only coexistently with the periodical function presumed by the theory now discussing to be an indication and a result of that excess.

This doctrine however, though plausible in itself and supported by the concurrent assent of many distinguished writers, cannot be regarded at the present day as sufficiently conclusive, and the author therefore in the present edition feels it his duty to decline entering upon those numerous facts and data which have been advanced in support of it. To those however who may be interested in the subject he begs to state that the question will be found very amply discussed in the first edition of this work, pp. 268 to 278 inclusively. The reader will there find an account of Sir Clifton Wintringham's experimental researches upon the capacity and other conditions of the circulatory apparatus in the male and female sexes respectively; together with the conclusions drawn from them by Haller and his disciples in

relation to the subject of menstruation. The theory of Cullen, or in other words a local plethora of the uterine system alone, has also been adverted to, together with the opinions of some who contend for the combined condition of a general and local plethora. In this place, in order to accommodate matter of a more practical and better ascertained nature, the author will content himself by briefly referring to a few of the circumstances which most conclusively militate against the truth of the supposed doctrines.

In the first place it must be allowed that neither of these theories seems to supply us with an explanation of one of the most important circumstances appertaining to the menstrual function; viz. that of its being AN ATTRIBUTE PECULIAR TO THE FEMALE OF THE HUMAN SPECIES. Sir Clifton's experiments are highly satisfactory, so far as they enable us to assume the existence of plethora in the sex as a fact, instead of, what before his time it must have been, a mere hypothesis; but they do not at all assist us with a reason why such plethora should be productive of menstruation in the female of our own species, and not produce it in the females of any of the species of inferior animals. That point is still an unknown quantity to be sought, and as yet unaccompanied by any adequate data for its discovery.

Nor is anything like a satisfactory explanation afforded of another equally remarkable fact, which especially characterises the menstrual function, viz. that of its periodicity, either by the experiments of Sir Clifton Wintringham, or by any of the theories of plethora which have been proposed to account for it. "As this plethoric state of the vessels of the uterus," observes Dr. Cullen, "produces an evacuation of blood from them, they are again put into a relaxed state with respect to the rest of the system. THIS EMPTIED AND RELAXED STATE IS SUPPOSED TO GIVE OCCASION TO A NEW CONGESTION, till these vessels are again put to a state of distension, which may either force their extremities, or produce a new hæmorrhagic effort with the same effect as before. Thus the menstrual discharge is begun by causes which must continue to produce it at certain intervals, till particular circumstances occasion a considerable change in the constitution of the uterus." A relaxed state of the vessels being supposed to give occasion to a new congestion, is probably an error of language involving an absurdity, which perhaps ought rather to be ascribed to the reporter of Dr. Cullen's doctrine than to Dr. Cullen him-

self. But in some other respects these statements are scarcely more than particular forms of expressing the facts of the function. The capacity of an emptied system to become again filled and even congested, is indeed a fact obviously necessary to the function; but the mere statement of the fact does not enable us to see the reason why, nor to discover the agency by means of which, it is again so filled and congested. Again, the return of this discharge at nearly the space of a month may very probably depend on a certain balance between the vessels of the uterus and those of other parts of the body; but this is another statement in a different form of expression of the fact, that the discharge of the function after continuing for a certain time ceases, and that at another time subsequently it presents itself again. We know nothing of the balance which the theory speaks of. We do not positively know that such a balance exists or is necessary; and if it exist, we know nothing of its operation in the production of the alternations of the supposed fulness and emptiness incident to the function.

OF THE SUPPOSED PROPERTIES OF THE MENSTRUAL SECRETION.  
—Of the properties of this fluid much more has been written than is positively known. Some of the best authorities amongst the ancients, among whom we should class Hippocrates and Aristotle, seem to have considered it as pure blood; and therefore make no mention of any properties which they imputed to it of a nature different from those of “fresh blood from the victim,” as Aristotle expressed himself on the subject. The elder Pliny, on the other hand, speaks of its properties as if they were possessed of the most poisonous malignity. His language is to the following effect: “With respect to the menstruation of women, nothing could easily be found to cause more curious and fearful results. Unfermented wine-juice is soured by its vicinity to a person in that state. Corn is deprived of its nutritious qualities by it, grafted shoots are killed, and young garden-plants withered. The fruit of trees, on which menstruous women have sat, falls blighted. The brilliancy of mirrors is dimmed after reflecting their image, the edge of burnished steel is deadened, as is also the shining beauty of ivory. Hives of living bees are quickly deprived of their busy vitality. Copper and iron become rusted, in consequence of being exposed to the contact of the malignant fluid. Dogs that taste it become mad, and their bite infuses with it an incurable poison. They



say, that even that small animal the ant can discover the vicinity of a menstruous woman, and that it throws away the provisions it chanced to be carrying at the moment of making that discovery, not taking to them again. This evil of such a nature and magnitude happens to women every thirty days; but prevails to a greater extent every third month. Some, however, have the menses oftener than monthly, others have them not at all. These latter, however, do not bear children; for this periodical flux is the matter which assists the male in the act of generation." Plin. *Secund. Natural Hist.* tom. ii. lib. 7, cap. 15, art. 13. In the law of Moses, the secretion incident to the function seems to have been considered more in the light of an infirmity of nature and of offensiveness to our senses, than as being possessed of the malignant properties ascribed to it by other ancient writers. *Levitic. xv. 19—38; Isaiah xxx. 22; Ezekiel xviii. 6.* In hot climates it is indeed probable that the menstruous secretion is very liable to become acrimonious under certain circumstances of inattention to the duties of cleanliness. Hence, no doubt, the origin of the strict regulations contained in the Mosaic ritual, and imposed upon the females of the Jewish nation, during, and for some days subsequently to, the period of the function. The personal habits of the native women of India are such as to lead to the same conclusion. The frequency of their ablutions is such as scarcely to be credited, were the fact not founded on the most unquestionable evidence.

Of the chemical properties of the menstruous discharge nothing very certain is known. In appearance, the secretion when quite healthy bears a striking resemblance to pure blood, nor does it in any of its ordinary sensible qualities seem essentially to differ from that fluid. It has been of late years a pretty general notion, that the menstruous evacuation does not possess any of the fibrine of the blood; but the fact has not been established on the basis of an adequate number of experiments. The brief account given by Mr. Brand, in his chemical researches on one or two other properties of this fluid, and on the blood and some other animal fluids, in the *Philosophical Transactions*, vol. cii. p. 113, furnishes perhaps the best existing chemical document on the subject. "Whilst engaged," observes that gentleman, "in observing the colouring matter of the blood, I received from Mr. Wm. Money, House Surgeon to the General Hospital at Northampton, some menstruous discharge collected from a woman

with prolapsus uteri, and consequently perfectly free from an admixture with other secretions. It had the property of a very concentrated solution in a diluted serum, and afforded an excellent opportunity of corroborating the facts respecting this principle, which have been detailed in the preceding pages. Although I could detect no traces of iron by the usual mode of analysis, minute portions of that metal may, and probably do, exist in it, as well as in the other animal fluids which I have examined; but the abundance of the colouring matter in the secretion should have afforded a proportionate quantity of iron, if any connexion had existed between them. It has been observed, that the artificial solutions of the colouring matter of the blood invariably exhibit a green tint, when viewed by transmitted light. This peculiarity is remarkably distinct in the menstruous discharge. I could discover no globules in this fluid, and although a very slight degree of putrefaction had commenced in it, yet the globules observed in the blood would not have been destroyed by so trifling a change."

From what is omitted, rather than from what is actually stated in this notice of Mr. Brand's, it may be inferred, that in the specimen which he reports upon there was no appearance of the presence of fibrine. In the article on this subject, *Dict. de Méd.* tom. xiv. p. 181, M. Desormeaux alludes to certain experiments of Dr. Lavagna, which would seem calculated to establish the fact of there being no fibrine in the menstrual evacuation: but he further observes on them, that they had not been sufficiently numerous, and that they had been made on such small quantities of blood as not to be conclusive.

It is a fact which would seem to corroborate this opinion, that the produce of the function collected in the uterus and vagina by reason of imperforate orifices of these organs has yielded no traces of fibrine in its composition, the consistence of such accumulations being that of a thinnish syrup or treacle. M. Desormeaux remarks, however, that the subject-material of the menses has occasionally been seen mixed with coagula, and that even in some healthy women the function is not unfrequently accompanied by an appearance of masses of concreted fibrine. "I have known," he states, "women in good health who parted with these coagula during the presence of the menses, whenever they had remained for many hours in a horizontal position, the blood in that case having been allowed to accumulate and to coagulate

in the vagina. I therefore feel myself warranted in concluding, that, if in some cases the menstrual blood is devoid of fibrine, it is not so in all." To the correctness of this conclusion the author cannot give his assent. On the contrary, his experience would lead him to presume, that the produce of this function, when performed perfectly healthily, and when it does not exceed the natural quantity, contains no fibrine, believing that in the cases referred to the specimens of concretioned fibrine are never presented during a healthy state of the function, and that therefore, when they are presented, they should be considered as being admixed with a discharge of actual blood, the result of morbid transudation or of solution of continuity of some part of the uterus.

OF THE INFLUENCE OF MENSTRUATION ON THE HEALTH, AND ON THE INFLUENCE OF GIVEN STATES OF HEALTH ON THE CATAMENIAL FUNCTION.—It is a pretty general opinion that the function of menstruation exposes its subjects, at certain marked periods of their lives, to considerable changes and modifications of sexual attributes; and that these changes are often competent very seriously to affect the health of women, if not even to determine the value of female life. The stages of female life thus indicated are principally those of puberty, when the function is first established, and of the climacteric or critical age, when it is usual for the menses to cease.

With respect to the influence of puberty on the health of adolescents, it is an important fact, which admits of no dispute, that the peculiar change which then takes place in the constitution of the female, including the establishment of the menstrual function, is, with a few rare exceptions, a crisis FAVOURABLE to her health. If by reason of any organic disqualification or of any presumed condition of incompetency on the part of the constitution to sustain or to admit of the sanguineous fulness and improved actions of life, which usually supervene at the age of puberty; if from these or other causes the catamenial function fails to be instituted, or is instituted to be afterwards irregularly or otherwise imperfectly performed; then indeed, THUS INDIRECTLY, menstruation may be supposed to have an unfriendly influence upon the health of its subjects. In a majority, however, even of these cases, the imperfect performance of the function should, in common with its accompanying circumstances, be considered rather as an effect of other causes than as itself the cause of the diseases and predispositions to diseased actions which



are usually attendant upon it. Wherefore, we find that the advent of puberty is more frequently the harbinger of improved health, and in fact a crisis decisive of the remission or disappearance of some of the most formidable maladies to which the human female is subject. If, in the ordinary proportions of deaths of females which occur at the age of puberty, any should appear to be imputable to the influence of some failure or imperfection in the performance of the function of menstruation, it would seem almost demonstrable that such influence must be very inconsiderable. It is even doubtful whether the life of the female, at this period, be not quite equal, if not superior in value, to that of the male at the corresponding period of his characteristic developments. It is a fact which has been long established, that, notwithstanding an absolute excess, by about five in a hundred of male over female births, there actually exists at the same time, in all countries which have been long inhabited, a greater number of females than of males. Black's Analysis of Diseases and Mortality, p. 24. Topographie Médicale de Paris, par C. Lachaise, p. 214. After some ingenious investigations on this subject, the talented actuary of the national debt records the following conclusion: "It is evident, that this is a consideration of very great consequence, for if there be a substantial difference in the rate of mortality to which the two sexes are severally liable, it follows as a self-evident truth, that a rate of mortality resulting from observations on both sexes indiscriminately can be applicable to neither, being too much for one and too little for the other." . . . . "That there is such a disparity is a fact within the familiar observation of all. In every census there are found alive many more females than males, while in the births and baptisms of every town, district, or kingdom, there is invariably produced at least 105 boys for every 100 girls. The lesser mortality of females was known to M. De Parcieux; but he was unable to assign the precise magnitude of the difference, except in regard to the monks and nuns. Four years previously it had been made public by M. Wm. Kersseboom; who, however, disregarded the difference in the general table of mortality which he sent forth. His data exhibit, from the experience of many thousands, the mean duration of male children distinct from that of females; and those infants must of necessity have commenced existence two centuries ago. With a slight correction the result may be briefly stated thus:

If there were ten classes of children at each age, the first under one year old, the last aged nine; and if the mean duration of life, which it was found each individual in a class had ultimately attained, were separately set out, the sum of the existence obtained by ten boys would be 369 years, and that of girls 402.5. In certain observations on the separate mortality of males and females at Chester, as set forth by Dr. Price, the same circumstance occurs. Taking the total existence of the first ten ages as before, there is for the boys 394.9 years, and for the girls 441.62. Yet Dr. Price, in like manner, disregarded the disparity. In other observations, taken at Montpelier, the fact was once more affirmed: the existence of ten males, as before, being 396.79 years, and of ten females 424.69. Again, on the whole population of Sweden, it was in like manner established; ten male children having 447.63, and ten females 471.26 years: and lastly, two additional tables have very recently appeared, showing the mortality of males and females respectively, both for the city of Amsterdam and the city of Brussels, for the males 397.97, the females 412.95. So that if the existence of the male children be represented in each of these six instances by the number 100,000, that of the females will by proportion stand as under; viz. anciently in Holland, 109,079; at Chester, 111,831; at Montpelier, 107,031; in Sweden, 105,279; in Amsterdam, 112,005; in Brussels, 103,764. All these results, it will be remembered, except the first, are founded merely on statistical data. But the superiority of female life is evident in every instance." Finlaison's Reports on the Evidence and Elementary Facts, on which the Tables of Life Annuities are founded, p. 17. Lond. 1829.

The same writer further proceeds: "It is hoped, that the annexed observations will remove all doubt whatsoever on that subject. They demonstrate that except under the age of twelve, and above the age of eighty-five, extreme periods in which perhaps no distinction of mortality is apparent, there is at every other period of life a remarkable and decided advantage in favour of the female. This is first most evident about FOURTEEN, after which the mortality among the female sex is observed to proceed onwards to the age of fifty-five, with the slightest imaginable increase, contrary to many received notions that child-bearing and nursing entail on this sex a severe mortality in early life; and that in the earlier stages of the decline of life they are also subject to many casualties; all which is utterly disproved by the fact. It is not true, but quite the

contrary, therefore, that married women incur greater danger than the single ; and reasonably may this conclusion be admitted, when it is considered that the married are in the first instance, in regard to health and strength of constitution, always the elite of the whole sex, the unhealthy not choosing to marry. After sixty, the female mortality advances more rapidly ; but is always, until the age of eighty, at least, very decidedly less than that of the males."

So much for the general fact of the excess of mortality of males over that of females. But it may be observed that such excess, as to the general result in favour of female life, might nevertheless consist with the truth of the commonly-received opinion that the influence of the catamenial crisis incident to the establishment of the function of menstruation is unfriendly to the health and lives of women ; inasmuch as the very crisis in question, though disadvantageous or even fatal to a few, might nevertheless to the many be made the means of improved health, and of a longer tenure of life. Of the reality and amount of effect, if any, of this earlier crisis upon the health and lives of females, there are scarcely sufficient data existing to warrant any very positive statements. At the respective ages of puberty in both sexes, as well as during every other portion of life's progress, the average rate of mortality as given in Mr. Finlaison's tables is greater, as has been already seen, in the case of the male than of the female sex. In a chart which gives at one view the rate of mortality of both sexes, and at all ages of all the government annuitants, recently constructed by Mr. Finlaison, we may observe somewhat more of approximation between the rates of mortality of the sexes at and about the age of puberty in the female than at any other period of life. But even at that period the rate of mortality of the female annuitants presents a manifest inferiority to that of the males ; whereas at the period of puberty in the male subject, the difference in favour of the female becomes still more striking. " Among males, on the contrary," observes Mr. Finlaison, " after the age of fourteen, a remarkable mortality occurs, which rapidly advances till the age of twenty-three." Reports, p. 18. How far this latter result may be imputed to any peculiar state of constitution incident to the male at this period of life, and possibly dependent on the absence of a functional source of security against congestive disease, such as menstruation furnishes for the female, or to the greater opportunities which the male possesses, and of which



unfortunately he then too frequently avails himself, of becoming a party to habits and practices exceedingly unfriendly to the best interests of his health and constitution, it seems difficult to determine. It is obvious to observation, that the lives of beneficial annuitants must be those of persons at least IN COMPARATIVELY EASY CIRCUMSTANCES, and therefore so far administrative of the means of excesses to the male members of such associations; excesses which are happily forbidden to females by the usages of good society. Add to this consideration, that the period of life here referred to, is that during which the youth of the male sex, in conformity with the more public and more robust destinies of their sex, are accustomed to embark in the pursuits of war and commerce, and to migrate from their native residences and climates for the prosecution of all sorts of speculations and adventures.

The calculations of the rates of mortality of the government annuitants must be considered as especially valuable in their application to our present inquiry; inasmuch as they exhibit, on an extensive scale, the comparative value of the lives of the associated members of both sexes taken at parallel ages, but originally registered in a great number of cases at ages so early as long to precede, and therefore necessarily to include, the period of puberty in the female. The results of these calculations are such as to induce us confidently to believe that the developments incident to that period, inclusive also of that of the establishment of the important function of menstruation, then for the first time instituted in the female system, so far from being morbidic and dangerous in their influence, are circumstances of positive value and advantage to the healths and lives of women.

As to the influence of the latter or climacteric crisis on the life of the human female, there appears to prevail a still more general impression than in the former case, that it involves a period of great danger to the lives of its subjects. It is an interesting fact, that nature at this season has to perform an important work for the ultimate benefit of the sex; and we know that a period of several months is generally occupied in its performance. If we duly consider the actual amount and variety of the concurrent circumstances which usually combine to effect the required object; e. g. the reduced diameter and change of action which must take place in many hundreds, perhaps in thousands of living tubes; the congestive accumulations of infiltrating fluids likely

to press inconveniently upon organs and tissues contiguous to the uterus ; numerous reactions of distant parts consequent upon the impeded momentum of the currents of blood heretofore transmitted to the menstruating viscus ; the required subduction of endless trains of associated actions, connected by habit, community of structure, or functional sympathy with the organ now about to be deprived for ever of one of its principal attributes ; the natural tendency to a plethora of the whole vascular system, or of important individual organs, in consequence of so considerable an evacuation as that of the menstrual secretion being more or less suddenly suppressed ; and finally, the immense force of pressure made upon the vessels proximately concerned in the function, sometimes sufficient to produce alarming lesions of structure, and profuse and irregular hæmorrhages ; if we duly consider all these circumstances, and many more might be added, can it seem unreasonable to expect that an epoch in the life of woman, rendered thus remarkable by the concurrence of so many clashing elements, should be one at least of temporary disturbance ? Such in fact is frequently and pretty generally the case. Some length of time, a period often of several months, is unavoidably taken up in adjusting differences, and in accommodating and naturalising the *ERRORES LOCORUM* and the disturbed movements of the system to their new relations. Thus, indeed, a crisis in the female constitution does take place on the retirement of the function of menstruation, which often proves of sufficient consequence to create great interest, and occasionally to excite much temporary alarm. Eventually, however, in most cases, this work of nature, for the most part carefully elaborated, and the means well-accommodated to their ends, is completed agreeably to her own intentions, highly conservative of the best interests of the individual. The physical character of the individual undergoes its destined change ; but by the change, the remaining interests and pleasures of life are rendered more uniform and durable.

The principal questions then for our consideration in this place are, whether any, and on what scale of proportion, do women sustain eventual detriment either to health or life from the accession of their climacteric or second constitutional crisis ? It is much to be regretted that adequate materials for finally determining these points do not actually exist. If we might appeal to the vague impressions of medical men, partly derived from reading, and partly from the uncertain recollection of

results of cases, we should certainly come speedily to the conclusion, that the period in question is one of danger to female life. Incidental to the changes to be then sustained, some considerable disturbances are to be expected to take place ; and when fatal or dangerous diseases happen to make their first appearance or to become established in the system about the same period, it must be acknowledged, that many of them are observed to be of a sexual character and to depend upon lesions of one or more of the sexual organs. After making this almost unnecessary concession, it still remains to be proved, that women are liable to a greater rate of mortality at this period of their lives than the other sex at a corresponding age, or that they are themselves subject TO A HEAVIER AVERAGE MORTALITY at the time of cessation of the menses, than at any other period, whether within a few years anteriorly or subsequently to that epoch. The best documentary evidence which is accessible to us on this subject, is to be found, as in the other case, in the excellent reports of Mr. Finlaison. If in reference to certain points of pathology, more immediately interested in the present inquiry, they are not so complete as we could have wished they had been, the deficiency is to be ascribed to paucity of materials, and especially of such materials as the more experienced members of our profession could alone have had it in their power to supply. The facts required for the formation of a most accurate comparative necrology of the sexes, at all ages, as well as at supposed critical periods of life, would be the ages of the patients with all attainable precision ; their states of health in early life ; their age on the accession of puberty and of the establishment of the catamenial function in the female ; state of health subsequently to that epoch ; whether married or single ; date of marriage ; whether any and how many children, and what proportion living ; predisposition of the family to what diseases, if to any ; of the ordinary duration of life of parents and other deceased members of the family ; name, date, and duration of the present disease ; date of recovery, and whether perfect or imperfect ; if the latter, the supposed subsequent state of the viscus or viscera principally affected by it ; moral habits ; special notice of sexual maladies ; and finally, date and any remarkable circumstances of fatal event. Correct records of these and other analogous facts noted on an adequately extensive scale, would enable us in a very few years to make most important contributions towards the improvement of



medical statistics, a service which could not fail to be deeply interesting both to the philosopher and the political economist.

In what we have further to state on the subject of our present inquiry, we have almost exclusively to depend on the calculations of Mr. Finlaison. The reader has already seen, that according to the observations of that gentleman, the period of cessation of the menses is not loaded with any marked excess of mortality. "This advantage in favour of female life," he remarks, "is first most evident about fourteen, after which the mortality in the female sex is observed to proceed onwardst o the age of fifty-five with the slightest imaginable increase."

For such of the results of Mr. Finlaison's operations, as are applicable to the crisis which is supposed to take place in the female constitution at the commencement of its decline, the author is indebted to the personal favour of that gentleman himself. They are especially illustrative of the immediately current part of our inquiry, and are distributed into three epochs of five years each, inclusive of the median line of life in both sexes, and in the female of the period of cessation of the menses. During each of these epochs, the rates of mortality of each sex are given as follows in their respective progressions. Out of 100,000 members alive of all ages, there will die in the five years after the age of 35, i. e. between the ages of 35 and 40, the latter inclusive, of males 7,042, and of females 5,738; in the five years after 40, i. e. between the ages of 40 and 45, the latter inclusive, there will die, of males 6,959, and of females 6,889; and after the age of 45, i. e. between the years of 45 and 50, the latter inclusive, there will die, of males 10,381, and of females 7,714.

The reader will please to observe, that in each of these several periods, there is a positive excess of deaths of males over those of females; but that in the middle series, viz. that between 40 and 45, which in the female includes within its extremes some few cases of early retirement of the catamenial function, but in the majority, the period of dodging preparation for the final cessation of the menses, the excess in question is much less than in either of the other two series. Of the correctness of these calculations, as applied to a class of select lives, there can be no doubt, as there is no room for error. For some interesting details in further illustration of this subject, see *Princip. and Pract. of Obst. Med.* vol. i. p. 287, 4to edit.

But the author does not feel himself at liberty to close the present inquiry without adverting to the following statements and references of M. Desormeaux. "The epoch of the cessation of the menses, commonly called the critical age, is ordinarily considered as a period of great danger to the sex. For a long time past, however, some of our ablest practitioners have considered the fears entertained on this subject as exaggerated and unfounded, and have believed that this retirement of the function is a natural phenomenon ordinarily exempt from accidents; and that to many women, and especially to women of feeble constitutions, whose menstrual evacuations had been too abundant and in apparent disproportion to their strength, it is even an earnest of the commencement of better health. Learned men, who have sought to establish laws of mortality for different periods of life, have found nothing among the sequels of death indicative of the ravages of the critical period. Muret, in a work on the population of the Pays de Vaud, observes: "My observations have not taught me that the age of from 40 to 50 is more critical for women than that of from 10 to 20." M. Benoiston de Chateauneuf has taken up these researches, and presented the result of them in a memoir which was read to the Academy of Sciences, in 1818, ON THE MORTALITY OF WOMEN OF THE AGE OF BETWEEN FORTY AND FIFTY." This essay did not appear in the Transactions of the Institute for the year 1818. "But this result is indeed so important," observes M. Desormeaux, "that I shall here transcribe its principal facts. 'From the forty-third to the sixtieth degree of North latitude, along a line extending from Marseilles to St. Petersburg, passing by Vevay, Paris, Berlin, and Stockholm, it is a fact that at no epoch of female life from the thirtieth to the sixtieth year are we able to discover any increase in the mortality of women beyond what should be attributed to the natural progress of age: whereas at all epochs of male life, from the age of thirty to that of seventy, we observe a greater rate of mortality of the male than of the female sex. This excess is most remarkable between the ages of forty and fifty. It results from these observations, that the age of from forty to fifty is more truly critical for men than for women; and that seems to be the fact whatever be the kind of life they lead, and whether they live in society or in retirement, whether in the camp or in the cloister.'"

OF THE FINAL CAUSE OF MENSTRUATION.—The final cause of a function is, in scholastic language, its intended use. The peculiar-

ity of the catamenial function, in being an attribute exclusively of the female of the human species, would seem to direct our inquiries on this subject to some special benefit or distinction of the human female as the object to be attained by it. But nothing very satisfactory has yet arisen from pursuing this line of inquiry. We have not been able to make out that the female of our own species is possessed of any exclusiveness of privilege, or any superiority of position over the females of other animals, merely by reason of her being the only subject of a monthly secretion from the uterus. It seems open to presumption, that, as being an attribute of a principal genital organ, it has been instituted for some object of a ministerial nature not very obvious to us, but essentially subservient to the ulterior and more important function of reproduction. But we find that although they do not menstruate, the capacity for reproduction exists in the females of the inferior animals quite as vigorously as it exists in the human female. It would seem, however, to be a law of the function of reproduction, in all animals, that conception can only take place during the presence of a certain amount of vascular fulness of the generative organs which are more immediately concerned in its actions. We accordingly observe that such is actually the fact in all the species of animals with whose habits in this respect we are best acquainted. The œstrum of the inferior animal is, no doubt, a state of phlogistic fulness of the genital organs; whilst, moreover, it is well known that the animal is susceptible of the influence of impregnation only during the presence of that condition of the parts. But in no species of inferior animal, does the vascular fulness incident to the œstrum present the character of a strictly catamenial fluid, whether we regard the quantity or quality of the subject material of the secretion as we find it produced by the agency of the human function. Making, however, all proper allowance for this supposed difference of character in the produce respectively of the analogous functions of the human female and of the inferior animal, it is nevertheless certain that their agency in both cases is accompanied by a vascular fulness of the organs concerned.

But there is another fact of still greater importance to the inquiry in which we are engaged, and so immediately bearing upon its issue, that it seems scarcely possible not to make it available for the formation of something like an opinion as to the probably-final cause of menstruation; and that fact is, that



impregnation scarcely ever takes place either in the human female or in the inferior animal, excepting during the presence of a vascular fulness of the generative organs, productive of the œstrum in the one and of the menstrual nîsus in the other. This uterine determination is indeed to be identified during a certain period of duration, differing probably considerably in different species of animals, with the contemporaneous existence of susceptibility of being impregnated. We have already had occasion to notice the ordinary duration of this function in the human female ; or rather we have simply noticed the stillicidious elimination of the secretion as it usually presents itself in the human female. But we have not properly and sufficiently considered the duration of the actual discharge as being only a portion of a more extended period, during the whole of which the female of our species may be presumed to be the subject of no inconsiderable vascular fulness. It is, in fact, to the existence of such vascular fulness, a fulness accessional to the still greater degree of plethora which we must suppose to be present during the actual discharge, that we must chiefly determine our attention, if we hope to discover even a clue to the ascertainment of the final cause of menstruation. It is, probably, during the presence and influence of the accessional vascular fulness in question that the human female is principally if not exclusively susceptible of impregnation. Whether or how far the stillicidium of the overt discharge might operate as a preventive of conception during that part of the time incident to the nîsus of menstruation which it occupies, there are no recorded and probably no existing facts to prove ; while on the other hand we have the evidence of all that is positively known or recorded of the history of the function in favour of the general fact, that the impregnation of the human female really does take place in the positive absence of the actual stillicidium ; viz. in a small proportion of cases immediately before its appearance ; but generally, in good keeping with the timid and modest habits of the sex, SUBSEQUENTLY TO ITS ABSOLUTE RETIREMENT. In other words we may safely presume that conception takes place in the female of our own species, not during the elimination of the actual produce of the function, which it is probable might not be practicable ; but nevertheless, subsequently, DURING THE CONTINUANCE OF A SUFFICIENT AMOUNT OF VASCULAR CONGESTIVENESS AND PHLOGOSIS TO ENSURE THE PRESENCE OF THE REQUIRED SUSCEPTIBILITY OF IMPREGNATION.

If we assume the probable correctness of this view of the subject, our immediately proximate inference might be, that human conception is effected in circumstances nearly equal as to degree of vascular fulness, to what we may presume is present during the œstrum or period of susceptibility of impregnation in the female of the lower animal. But if this apparently striking analogy among some of the more remarkable phenomena incident to a kindred function, which in some other respects might seem peculiar and distinctive of different orders of subjects, be really anything more than a gratuitous assumption, we might, perhaps, be permitted to entertain at least a presumption of the identity of their final cause. In the one and the other case we observe that the functions are sexual. They belong to the same sex, and are attributes relatively of the same functional organs. They are governed by similar laws, and obedient to the impressions of similar influences. They have their periods of original commencement suited respectively to the ages and developments of their subjects, as well as those of their subsequent returns, their allotted duration fitly proportioned in different species to the natural duration of the capacity for reproduction, and with the extinction of that power they eventually cease. It is, therefore, probable that both in the human being and in the animal they are bestowed by nature for the common purpose of qualifying their generative organs for their common function of reproduction.

OF THE DISEASES OF MENSTRUATION.—The lesions of this function are, its absence, from its not appearing at the proper age, technically called *emansio mensium*; its suppression, in like manner from its being suppressed after its first appearance, called *suppressio mensium*; its excess as to quantity of secreted fluid, constituting *menorrhagia*; its painful and imperfect performance aptly designated *dysmenorrhea*; together with several varieties of morbid secretions of the genital organs, called *leucorrea* or *fluor albus*.

OF *EMANSIO MENSIIUM*.—The ordinary period for the first appearance of the menses, as was stated in a former page of this work, is about the age of fourteen. If by reason of delicate constitutional health, or of natural or personal disqualification of any kind, the function be not established at or soon after that period, an assemblage of symptoms supervene, which together have received the designation of *chlorosis*. *Emansio mensium* properly expresses the fact of a long tarrying or delayed appearance of the

menstrual function. It is most frequently used more comprehensively, as including also the morbid symptoms attributed to its absence or non-establishment. In this sense it comes to represent a variety of morbid states, both of the general system and of the genitals, and approaches in its extent of signification to that of the term chlorosis or green sickness. The latter designation is derived from *χλωρός*, which signifies green; and which by some writers is supposed to have been first used to express the sickly colour of the complexion, and by others that of morbid discharges from the genitals which are supposed to be sometimes secreted by the uterus vicariously to that of the healthy function. Under our present head of subject, we shall treat of the non-appearance of the discharge as simply accidental, and as forming only a part of the more general disease of the individual unfortunately become the subject of it.

*Emansio mensium*, in its more extensive acceptance, may be understood to represent a feeble condition of many of the functional attributes of the system, added to the absence of menstruation. The absence of the catamenial function is only one item, and often not a primary one, in the general sum of bad health. There is a paleness and muddiness of complexion, in some cases an imperfect development of the figure, and in others, a degree of fulness and obesity of the subcutaneous tissues, but associated to a colour and an expression of countenance too indicative of a feeble action of the powers of life. The colour of the integument, indicative of a chlorotic state of the health, has been aptly enough compared to that of young people infested with intestinal worms, and is perhaps mainly to be attributed to the operation of the same general cause; viz. perversion or deficiency of the power of digestion. The chlorotic state is often therefore to be identified with imperfect functional actions of the chylopoietic viscera; the non-appearance of the menstrual secretion being referrible to paucity of blood in the system, as much as to the want of sufficient power and development of the organs especially concerned in its production. Allied to this chlorotic condition of the female, by reason of which the menstrual function in some cases fails to be instituted, is a certain analogous state of the health in males, which by some writers has been identified with, and actually called chlorosis. It seems indeed probable, that in a majority of cases, in which we observe retention of the menses to be complicated with constitutional chlorosis, the non-appear-



ance of the menses may be a result, in common with many other varieties of atony or depraved functional actions in the system, of very early derangement of the digestive organs.

It was the opinion of Hoffman, that chlorosis should be defined to be a gastrico-hectic fever, inductive of a state of great debility, produced by derangements of the function of digestion, and accompanied in females by retention or suppression of the menses. Of the gastric origin of chlorosis, there are many circumstances of importance which would seem calculated to induce us to recognise at least a great apparent probability. When a young woman becomes the subject of chlorosis, we have disturbances of the gastric functions among her earliest symptoms. If the non-appearance of the menses be obviously an effect of constitutional atony, the history of the patient will in most cases develop to us an antecedent consecution of dyspeptic sufferings of several years' duration. The accompanying affections of remote organs, as of the head for example, are moreover such as are usually recognised as symptoms of dyspepsia. Whether we suppose the chlorosis, as often happens, to be a constitutional condition of long duration, derived from errors committed in the nursery, or imputable to the influence of poverty and destitution in early life, or whether it be the effect of a painful impression in the midst of vigorous health, made more or less suddenly on the mind or on the nervous system, or on the sanguiferous system, or on the temperature of the body, or in short upon any of the more important functional actions of life, we may almost always observe that derangements of the digestive organs are sure to present themselves among the first movements in the general disturbance. If these remarks are well founded, it follows that chlorosis and retention of the menses are equally effects either directly or indirectly of morbid conditions of the chylopoietic organs.

After this explanation, we proceed to describe briefly the ordinary symptoms of retention of the menses complicated with chlorosis.

The first series of symptoms are those of dyspepsia, great languor in the exercise of all the faculties, both of the body and mind, together with great repugnance to motion or changes of circumstances of any kind requiring bodily exertion. As the disease advances, the period for the institution of the menstrual function having perhaps already lapsed without the occurrence of

the wished-for change, pains of the back, loins, and thighs, sometimes of the ankles or other joints, are added to the gastric disturbances. Upon these symptoms, the characteristic expression and complexion of the countenance, and the usual puffiness of different parts of the integument, are observed to supervene. In the morning, this slight turgescence of the subcutaneous tissue occupies principally the face, and especially the eyelids and parts immediately adjacent. In the midst of this fulness, however, the eye itself moves languidly when it moves at all. The skin, which perhaps had once presented the hue of moderate health, and subsequently a degree of paleness indicative of an increasing delicacy of constitution, exhibits in the sequel the remarkable admixture of paleness and dinginess which always attends and which therefore is necessarily a pathognomonic symptom of a confirmed stage of the disease. In some cases the natural complexion changes progressively from bloom to paleness, and from paleness to a leaden greenish or sallow brownish hue, approaching to that of jaundice. It should however be observed that the peculiar dinginess of the skin is essentially different from the characteristic colour of it in jaundice, and that it may be always distinguished from the proper complexion of jaundice by its not affecting the sclerotic coat or, what is called, the white of the eye. The ankles, and in some cases the entire surface of the body, are affected by oedematous infiltrations towards evening, producing an obvious fulness or swelling of the parts affected; which, however, is observed to disappear during the night. Chlorotic girls often complain of pains and of a sense of tension in the hypochondriac regions. They are sometimes much addicted to gaping and yawning, which they cannot suppress even when in company. They experience generally a feeling of torpor, accompanied by a painful sense of stiffness of the lower extremities. They have, moreover, a great propensity for sleep and especially for rest in every form. Their digestion is difficult, and attended with distressing headaches, with a painful sense of weight and fulness at the scrobiculus cordis, and often with an intense heartburn. Sometimes the appetite becomes so depraved as to induce the patient to wish for things to eat which at any other time would be considered as exceedingly repugnant and improper. At an advanced stage of the malady, hectic fever supervenes, which rapidly undermines the strength and brings the subject into a state of great depression of all the powers of life. At this period

the slightest attempt to make an exertion of any kind induces great difficulty of breathing and palpitations of the heart. With persons susceptible of strong nervous impressions, faintings and hysteric affections are not uncommon occurrences. Associated with other indications of the same temperament may be noticed the frequent accession of pains, of probably a neuralgic character, of different parts of the body, but especially of the surfaces about the face, neck, and head. Some also complain of deep-seated tensive pains in the globes of the eyes. Many chlorotic girls are exceedingly tormented at nights by frightful dreams; whilst in the day they are the constant victims of distressingly low spirits and moping melancholy.

Having premised these few remarks upon chlorosis as an accompaniment, and as in some cases indirectly a cause of retention of the menses, we now proceed to consider the absence or non-performance of that function in a more general point of view, and as a more comprehensive subject of inquiry, without feeling obliged to carry with us throughout the whole of the discussion the technical distinction of amenorrhea into retention and suppression; that distinction being exclusively founded upon the mere accident of the malady presenting itself either before or subsequently to the establishment of the function.

The proximate cause of amenorrhea is in a great measure a mystery to us; nor can this be a matter which should excite our surprise, when we consider the fact, that we are also equally ignorant both of the proximate and occasional causes of the function itself, of which the non-performance constitutes the essence of the disease. The more obvious conditions of the function are, first, a periodical determination of a greater quantity of blood to the uterus than is necessary for its proper supply without waste, and on the scale of the ordinary supply, as determined to other parts of the body; and secondly, a specific action of a part of the vascular tissue of that organ, perhaps the ultimate ramules of its arteries, see p. 197, by which a part of the blood so determined, after undergoing some change, is permitted to escape out of the uterine cavity into the vagina. Now these are the essential conditions of the function: and if we suppose the abstraction of either or both of these conditions, amenorrhea would of course be the consequence. Hence in a practical history of the morbid phenomena of menstruation, we may perhaps be permitted to predicate generally of the proximate cause



of its non-performance, that its elements are essentially either the absence of the material of the secretion, or the existence of some morbid disqualification of the discerning tissue of the uterus to make the material when presented in sufficient quantity available for the purposes of the function.

The predisponent causes of amenorrhea are generally such as may be considered productive either of feeble constitutional powers, which we usually observe associated with retention, or of quick sensibilities to morbid impressions, which we may venture to identify with the probable amount of predisposition. The list will therefore contain all debilitating causes likely to occur in early life, such as deficient supply of milk, the natural food of infants during the first weeks and months of their existence, deficient or improper food of other kinds during the earlier years of life, exposure to bad management generally during the period of nursing, a cold moist and marshy climate, confined and crowded residences, deficient clothing, whether from poverty or from absurd prejudices of fashion, tambouring, lace-making, wool and cotton carding, &c., together with excesses and early depravities of all kinds. Morbid susceptibilities to impressions are partly constitutional and hereditary, and partly to be ascribed to errors of moral and physical education.

The occasional causes of amenorrhea are, cold suddenly applied, or what in this country is emphatically, but not very correctly, called catching a cold; the exposure of the person in a state of inactivity and not adequately clad for too long a time to the action of a cold atmosphere; a sudden change from a warm to a cold atmosphere; immersion of the body or part of the body during the presence of the catamenial secretion in cold water, or drinking in similar circumstances cold fluids; losses of blood by hæmorrhages or unnecessary and mistimed bleedings; exhausting discharges from wounds sores or any other sources; severe cutaneous eruptions; local irritations of any kind, whether produced by diseased actions or by medicines; inflammatory congestions of blood in parts remote from the uterus; febrile disturbances of all kinds; accidents from falls, blows, loss of balance or quick movements of the body; gastric embarrassments from whatever causes; great personal exertions when not accustomed to the use of them; strong mental impressions from frights, paroxysms of anger, sorrows for great and sudden losses of friends or fortune; the more silent regrets incident to gradually sinking

circumstances; disappointed hopes, and especially disappointed love.

The concurrence of predisponent and occasional causes is by no means necessary to the production of either form of amenorrhea. If the predisposition be great, amenorrhea may take place without the interposition of any occasional cause; whilst on the other hand, if the occasional cause be one of a violent character or of considerable duration, it will produce the effect of suppression of the catamenia in the perfect absence of predisposition to it. The efficiency of an occasional cause must be presumed to depend, in no small degree, upon the period of its application relatively to the period of the function. If, for instance, the *nisus* of menstruation be present, or on the eve of manifesting itself, when an exciting cause of disturbance of sufficient magnitude is applied, the effect will follow; whereas, on the contrary, a cause of much greater magnitude may be applied with impunity at a nearly median period between two menstruations. In the greater number of cases of amenorrhea the disease is of a chronic character, and can seldom be relieved or cured without a gradual amendment of the constitutional powers; but suppression of the function, when previously vigorously performed, is most frequently the effect of some known occasional cause, and is generally observed to be accompanied by constitutional symptoms of considerable severity and acuteness. The concurrence of influences from each class of causes, or the exclusion and amount of effect derived from either, may generally be pretty accurately determined by the symptoms or special circumstances of cases which will be reported or otherwise accessible to the physician during his first interview.

The symptoms of amenorrhea might furnish the materials of a long catalogue. The following are amongst the most important: The suppression is almost always preceded or accompanied by a sense of pain and heat in the hypogastric and lumbar regions, with that of increased magnitude and weight of the organs within the pelvis, accompanied by acute darting pains of the uterus itself, increased fulness of the abdomen, and occasionally by painful tension of the breasts, and a distillation in a few cases of a minute quantity of a serous milky fluid from the nipples. The author is not sure that this latter incident ever presented itself to his observation, except in the instance of women who had been mothers of children.

The above symptoms are much more urgent and striking when the suppression takes place suddenly, and when the existing cause produces a violent effect, than when, from having been feeble or progressive in its influence, the disease is more slowly established. They are moreover more acute and formidable, when the cause of disturbance is applied at the commencement than at an advanced stage of the progress of a menstrual period, as also in cases where the secretion is abundant than in those where it is usually sparing in quantity.

To the symptoms just enumerated, which are essentially pathognomonic, and therefore common to all cases, there are often added many others of equal intensity. These are the protœiform symptoms incident to fevers and to congestive inflammations; pains of different organs and regions, heat and dryness of skin, thirst, intense headaches, sickness and vomiting, suspended or vitiated actions of the secerning organs, generally disturbances in the lymphatic system, hæmorrhages from the nose, rectum, and other outlets.

Then follow the almost endless results of suppressed menses; first and foremost, obstinate disturbances of the chylopoietic organs; the immense assemblage of symptoms abstractedly represented by the term chlorosis; various morbid affections of the nervous system, including hysteria, St. Vitus' dance, epilepsy, mania, etc.; glandular tumours and other distressing results of obstruction in the lymphatic system; jaundice and other evidences of a torpid action of the liver; painful swellings of the joints; dangerous erysipelatous inflammations; great dryness and asperity of the common integument, amounting in some cases to a degree of scaly leprosy; a disgusting growth of a masculine beard on the female face, although perhaps before, an index of the softer graces of the sex; periodical determinations of blood to the head, the lungs, kidneys; divers formations within the cavity, together with chronic inflammations, infarctions, scirrhus and carcinomatous indurations of the proper substance of the uterus, terminating in malignant ulcerations of its tissue, rapidly to be propagated to its adjoining and subordinate organs; so as finally to involve in one common destruction all that is structurally sexual and distinctive of the patient and interesting being, whom nature had intended to be the best friend and most faithful companion of man during life's devious journey.

Such is a rapid but comprehensive sketch of the symptomato-



logy of amenorrhea. It is indeed a melancholy picture of the stages and possible issues of the disease. Happily, however, it is a crowded abstract from the general history of disordered menstruation as it has presented itself in a thousand subjects, rather than a real picture, whether of consecutive or associated miseries incident to any particular case. At most it can only be the history of individual sufferings, and not a description of the lot of all or even of a considerable number of the sex to which it applies. It is almost a casualty in female pathology. It is a speck on the surface of a variegated orb, and is as dark as it well can be ; but it is nevertheless only a speck. Woman like man is mortal ; but Mr. Finlaison, it is presumed, has some time since convinced the reader, that notwithstanding her liabilities to some few exclusive and sexual perils, she yet enjoys, on an average scale of her privileges, the remarkable one of a longer duration of life than that of her more powerful protector and companion. For cases and for references see the 4to edition, pp. 299, et seq.

OF THE DIAGNOSIS OF AMENORRHEA.—The diagnosis in cases of amenorrhea is seldom attended with much difficulty. The fact itself, of the function being suspended, from whatever cause, must of course be known to the party herself ; but it seldom happens that either retention or suppression ever takes place without its being attended or speedily followed by other and obvious symptoms of disturbed health. It is naturally suspended, as we have already seen, during pregnancy, and during lactation. Under certain circumstances of the former state, it sometimes happens that the subject of the suspension may have motives for wishing to conceal the actual fact of her case, her physician being in the mean time consulted on the supposed morbid suspension of her catamenial function. Young women have been known under such circumstances to have recourse to extraordinary arts of deception, in order to impose on the credulity of their friends, and the less easily duped sagacity of their medical attendants. In other cases, married women, unblessed with a family, but at the same time anxious to become mothers, have occasionally deluded themselves with false hopes and deceptive convictions of their being pregnant, when they have not actually been in that wished-for state, on account of trifling irregularities in the menstrual function, and even sometimes without any such irregularities at all. A third class of females have erroneously imputed

to pregnancy the reduced quantity and dodging performance of the catamenial function incident in many cases to middle and advancing life, when women are especially subject to enlargement of the abdomen and of the mammæ from increasing corpulency.

OF THE TREATMENT OF AMENORRHEA.—Retention of the menses being usually the result of constitutional disqualification, an adequate view of its treatment would lead us to the consideration of a subject much too comprehensive to be treated of in the present article; viz. THAT OF THE INFLUENCE OF PHYSICAL EDUCATION on the development and competent performance of the catamenial function. It is indeed seldom that retention of the menses is submitted to the consideration of the physician in connexion with any object of prophylactic treatment. The patient is usually presented to her medical attendant the actual subject of her malady. The curative treatment will therefore include the whole of his undertaking; distributable, however, in many cases into two principal heads, viz. THOSE OF MEDICINE AND REGIMEN.

In the management of every case, our first object should be, if possible, to ascertain the cause. The causes of retention of the menses are either organic or functional. Of the former, some may be considered as original or congenital; and others, the result of accidents or diseases.

Under the head of congenital causes are to be noticed the absence or non-development of one or more of the organs essentially appertaining to the sex, as of one or both ovaries, or of the uterus; and of malformations of one or more of the sexual passages. The absence of the uterus, which is itself the menstruating organ, must obviously be incompatible with the performance of the catamenial function. This defect of nature, in common with the insufficient development of the same organ at the age of puberty, is usually accompanied by malformation of the vagina and external genitals. Of cases of this description, a few have already been referred to in a former page, and many others will unavoidably be noticed under their proper head in a future article. It is obvious that retention of the menses from any of these causes can admit of no treatment.

We have already had occasion to notice cases of non-appearance of the menses at the proper age, but nevertheless accompanied at certain periods by the phenomena usually incident to the presence of the catamenial function, as depending upon impediments from imperforate passages. The principal duty of the medical attendant

in such cases, is to detect the cause. Some address, perseverance duly combined with temporizing forbearance, and the utmost delicacy, will be required to be practised in order to arrive at the knowledge of the actual fact of cases of this kind. The fact itself duly ascertained, a crucial incision or perforation of the impeding structure by a trocar, will at once present itself as the proper and obvious remedy.

When consulted in cases of non-appearance of the menses at the usual age, the practitioner has for the most part to ascertain, first, whether the other ordinary phenomena of puberty shall have manifested themselves; or whether they may be only in progress of being developed; and then, in either case, whether the supposed retention be or be not complicated with any derangement of the general health. If the general health is supposed to be yet undisturbed, the appetite to be good, the sleep sound, the spirits cheerful, and the ordinary functions of health well performed, it might admit of great doubt whether, in such a case, any services of our art could be made efficiently available. We should perhaps advise a change of residence, travelling, prescribe the limits and modes of personal exercise, &c., rather than obtrude measures of professional interference when not positively indicated.

If on the other hand we suppose a case of actual constitutional retention attended by its usual accompaniments of disturbance of the chylipoietic functions, viz. diminished appetite, fancifulness in the choice of foods, depressed spirits after eating, acidities of the stomach, flatulencies, with noisy movements of the bowels, and also with occasional pains and a sense of heat and tension in the uterine region, aching pains of the loins, thighs, and small of the back, it becomes the practitioner's duty to pay his earliest attention to it. He will of course have to consider whether the retention be probably a fault of the constitution, or that exclusively of the genital system. Is the subject of the retained menses apparently plethoric, or of a slender habit? Has she a full and powerful pulse, or a small and feeble one? Is she fresh and blooming, or pale, sallow, and delicate? Are her symptoms those chiefly of a constitutional character, as want of strength, want of appetite, short breathing, palpitations of the heart, lassitude, etc., or those of sexual plethora, such as a sense of fulness, weight, heat, tension, etc., of the organs within or in the neighbourhood of the pelvis?



In cases of constitutional debility, combined with paucity of blood in the system, it is manifest that no emmenagogue medicines could be exhibited with any prospect of success ; inasmuch as it would be worse than useless to stimulate the menstruating organs with medicines of that class as long as they might be supposed destitute of the material of their proper secretion. In the treatment of such cases, therefore, our first indication should be to put the subject in a situation to possess as soon as possible the means or material in question. In most cases of great feebleness of constitution, with paucity of blood, we may readily observe that the function of digestion is in a very feeble, perverted, or morbid state. The want of activity and efficient performance of that function, will be found to have attended such cases for many months, and possibly for years, before they are formally submitted to the consideration of the physician. His first combinations, therefore, will have for their object the establishment of the general health, which would include a system of treatment too extensive and diversified to admit of being at present adequately exemplified.

In cases of chronic inaction of the organs of digestion, it may be laid down as a rule of practice seldom to be departed from, that before we proceed to exhibit any specific remedies, we should obtain healthy absorbent surfaces by a thorough cleansing of what are usually called the first passages. Hence the propriety of premising an active emetic. That should be followed up by the exhibition of an efficient purgative, consisting of calomel, colocynth, jalap, scammony, etc. Two or three doses of these purgatives will not more than suffice to effect the complete emptying of the torpid bowels of chlorotics ; and these evacuations, consisting as here described of repeated doses, should be repeated at least once or twice during every month. See the admirable cases on this subject by Dr. Hamilton in his work on Purgative Medicines.

Having thus obtained gastric surfaces calculated to be benefited by the administration of other remedies, the practitioner will then proceed without loss of time to exhibit alterative and mildly tonic medicines, such as blue pill in occasional doses, the extract of colocynth with or without aloes, if necessary to keep up a freely soluble state of the bowels, the extract of taraxacum, infusion of gentian, etc. After these measures shall have been adopted for some weeks, the patient will be seen to improve in her health, strength, and appetite. The practitioner will then find his advantage in adding to the

medicines just stated large and frequent doses of carbonate of iron. The circumstances of the individual patient will of course suggest some modifications as to the application of the remedies recommended, as well as possibly many important additions, which we shall now proceed to consider at greater length under the next head of our subject, viz. the treatment of *suppressio menses*.

OF THE TREATMENT OF SUPPRESSION OF THE MENSES.—In the treatment of suppressed menses, we have first to ascertain the character of the case, as being either recent or chronic. In the event of our being consulted immediately upon the suppression taking place, and in the midst of the constitutional turbulence almost always consequent upon its sudden occurrence, we shall in most cases be able, by proper measures, to effect its restoration in the course of a few hours. To accomplish this object, however, we must have recourse to such means as will enable us speedily to restore the lost balance of the circulation. Perhaps the exhibition of an active emetic, consisting of a grain and a half of tartarised antimony and a scruple of ipecacuanha, may suffice to ensure the attainment of this object. If, however, in the course of two or three hours it shall appear not to have been attained, then the patient should be bled *ad deliquium*. That evacuation will seldom fail to restore all the functions of the subject to their proper and healthy state. In a great majority of cases the catamenial evacuation would be speedily restored by it; and in those in which it might not be immediately restored, it would scarcely ever fail to take place at the proper period for its next subsequent appearance.

But it unfortunately happens that the medical attendant is seldom consulted until after the lapse of many days, or even of weeks, after the actual suspension of the function. The affair will then of course have become a matter of history; and the facts of that history it is manifest will be an object of great importance to collect accurately and judiciously. The prognosis in this case would greatly depend on the duration of the interval intermediate between the suspension of the function and the opportunity given to the medical attendant to deal with its consequences. If we suppose the practitioner to be consulted within the two or three first weeks after the interruption of the function, and he should then find the patient's circulation considerably excited and attended with disturbances of other functions, it will in most cases be advisable that he should abstract a moderate

quantity of blood, and preferably, if it can be done conveniently, from the loins BY CUPPING. In a few days subsequently, and as soon as the part shall have healed, he might find it useful to apply over the same surface an ample blister.

The time for the reappearance of the function being now supposed to be about to approach, it will generally be found advantageous to exhibit a smart purge consisting of calomel, colocynth, and aloes. In the event of the secretion making its appearance at the proper time, the case may be considered as having terminated prosperously, and will subsequently only require ordinary management on the part of the practitioner and his patient. If, on the contrary, the secretion shall not be visibly restored, it will be a circumstance of considerable value that the phenomena usually attendant on the catamenial function shall present themselves at that time, viz.—pain, with sense of heat and distension in the uterine region, pains in the loins, thighs, and the usual symptoms of feverishness, headache, nausea, pains and sense of fulness of the mammæ, disrelish for food, lassitude, etc.

On the departure of these symptoms the practitioner should make his best arrangements for the re-establishment or improvement of the general health, paying the most sedulous attention to the state of the digestive organs. During the next interval he should exhibit either two or three smart purges, and intermediately small doses of blue pill with mild bitters and tonics. During this same interval also, the author would think it exceedingly proper to commence the exhibition of carbonate of iron in drachm doses taken three times a day. By this treatment he would, in a large majority of cases, feel himself warranted in expecting that the next period would respond to the best hopes both of himself and his patient.

In cases of the ordinarily attendant symptoms of the catamenial function repeatedly occurring unaccompanied by its proper secretion, it has been proposed by many eminent practitioners to abstract from the uterine system or its neighbourhood moderate quantities of blood, either at the proper time for the appearance of the discharge, or immediately subsequently. This indication has often been admirably well answered by the application of leeches to the pudendum. The number of leeches proper would appear to be from a dozen to a score during the supposed period. *Nouveau Journal de Médecine*, &c. tom. iv. p. 160. From what has been advanced in a former page of the work, of the extensive



inter-inosculations among the branches of the uterine and vaginal arteries, it will be readily understood that any considerable abstraction of blood from the latter will not fail to relieve the plethoric condition of the former. With the same indication the leeches may be introduced through a tube into the interior of the vagina, and even as far as the orifice of the uterus itself. In that case it should be observed, as a matter of precaution, not to use more than four leeches at a time. It need not be added that the official part of such a duty should be performed by a modest and intelligent female.

The author has for many years been in the habit of employing for these services one of the most experienced and best educated midwives of the Maternity Charity. He does not recommend this very efficient mode of applying leeches as absolutely novel in its adoption, excepting perhaps in this country; as there is a case recorded by Lanzoni of its having been adopted by him with perfect success as long ago as the latter part of the seventeenth century. Lanzoni, indeed, speaks of it as a practice familiarly known even before his time. "At length he proposed leeches, which the parents having agreed to, he applied two to the internal part of the uterus," meaning the interior of the vagina, "in the manner, and by the means, advised by Hieron Nigrosolus, in his *Progymnasmata*. In a few days she became quite well. She soon after married, had children, and was never afterwards troubled either with headache or with suppressed menses." *Ephemerid. Germ. dec. ii. an. 10. 1691*. The utility of this practice may be represented as twofold, viz: — first, as being calculated to relieve the over-distended vessels of the uterus and its dependences, so as to prevent the establishment of subsequent obstructions and infarctions of the genital tissues; and, secondly, to sustain the habit of periodicity of a sanguineous determination to the menstruating organs.

That determination regularly taking place, we do not seem to know why in many cases the actual discharge does not present itself; there being producible innumerable proofs of the existence of the determination in question without its being accompanied by the ordinary external manifestation of it. Many authors, especially foreign writers, have ascribed the failure to spasm, or morbid contractility of the secerning vessels of the uterus. But the various modifications of this theory are only so many varied expressions of our ignorance of the actually morbid state of the menstruating organ when so implicated. May we not suppose

that the determination allowed to exist may often really exist in a degree sufficient to account for the phenomena of tension and congestive fulness felt in the uterine and lumbar regions during the proper period of the function, and yet not be sufficient to enable the menstruating organ to furnish the material of the secretion? This notion, which has been espoused by many writers, is not devoid of plausibility, but it may not be so exclusively admissible as to warrant the entire rejection of the hypothesis which ascribes the failure to rigidity of the extreme vessels of the uterus. The notion of this rigidity has led many continental practitioners to the recommendation of warm baths, and to varieties of what we might call steaming processes, applied to the vagina and the orifice of the uterus; and there can be no doubt that these measures have often been attended with excellent effects.

We next proceed to consider the subject of suppression of the menses in its chronic form; and the reader will be pleased to consider what will be advanced on this part of our inquiry as also generally applicable to THE MORE ORDINARY CASES OF RETENTION OF THE CATAMENIAL FUNCTION. When the suppression shall have existed for a long time, there is always reason to apprehend that, if not already the result, it may eventually become the cause of derangement of structure. Hence, upon inspection after death of persons whose uterine organs had been obstructed during such portions of life as are usually respondent to the menstrual function, pathologists have seldom failed to witness structural diseases of the organs in question quite sufficient, and more than sufficient, to account for all that had been previously observed in the history of the functional malady. Examples, however, have been numerous recorded of women having been the subjects for many years both of retention and suppression of the menses, whose cases, nevertheless, eventually yielded to many forms of active and skilfully-applied remedies. The structural diseases of the uterine and ovarian tissues are often in their incipient stages beyond the reach and cognizance of the best-devised researches of the pathologist. Our obvious duty therefore, in all such cases, should be to avail ourselves of the best known resources of our art, and to make use vigorously of those measures of which experience has frequently and unequivocally established the value. It has more than once been hinted at, that an early consequence of suppression of the menses is derangement of the function of digestion.

After removing the inordinate febrile disturbance which usually more immediately supervenes upon a sudden suppression, it will accordingly be the practitioner's next duty to pay his earliest and best attention to the state of the digestive organs. But it sometimes happens that such attentions fail of their object; or, as may occasionally be observed in other cases, suspended menstruation may coexist with a moderately healthy condition of the organs in question. In such cases the practitioner will be disposed, or feel himself compelled, to have recourse, either singly or in combination with some of the milder tonics already noticed, to one or more of those articles of the *materia medica* which have been considered as being especially adapted to stimulate the uterine system. The agents are called *emmenagogues*, and include several simples, chiefly derived from the animated kingdoms of nature; such as madder, rue, savin, arnica, myrrh, ergot of rye, cantharides, etc.

Of all those supposed stimulants of the uterine system, *MADDER*, technically called *RUBIA TINCTORUM SATIVA*, may be considered as occupying the first rank. The virtues of madder were known in very remote times, and it has been extensively employed for *emmenagogue* purposes in most of the countries of Europe in modern times. Dr. Home, *Medical Commentaries*, vol. vii. p. 217, observes, in reference to this powerful *emmenagogue*, that out of nineteen cases of *amenorrhœa* which were treated by it, fourteen were happily cured. The preparation employed was that of the powdered root, and "it was given to the quantity of half a drachm twice or oftener in the day." It has scarcely, he further observes, any evident effects. It never quickens the pulse, nor lies heavy on the stomach; and in general it restores the discharge before the twelfth day from the commencement of its use. A valuable case in illustration of the powerful effect of this medicine may be found recorded in *Simmons' London Medical Journal*, vol. ii. p. 230. The author has indeed himself, on several different occasions, seen excellent effects from the use of madder in *amenorrhœa*.

Of the utility of *RUE* as a remedy for *amenorrhœa*, the testimony is far from being precise and satisfactory. Many cases of its good effects are indeed recorded in the older works; but the histories are so extravagant, and the administration of the remedy so frequently complicated by its admixture with other medicinal agents of known power, that the published results of



its employment are scarcely such as to deserve much reliance upon them. On the whole, it seems probable that rue is little more than a warm and nauseous antispasmodic of no considerable efficacy.

The deobstruent effects of SAVIN would appear to be entitled to more attention. It has often been given as an emmenagogue, especially in cases of uterine obstructions supposed to depend upon a want of tone or irritability of the vessels, and in relaxed and weak habits; but its employment is considered as contra-indicated in plethoric subjects. Savin is an evergreen shrub, with short narrow prickly leaves, like those of juniper, of which indeed it is a species. Lin. Sp. Pl. 1472. The part used is the powdered leaf. When employed for improper purposes, this agent has been generally taken in very excessive doses in the form of decoction made with the fresh leaves and tops. The best fact in illustration of the emmenagogue power of savin known to the author, was communicated to him some years ago by a pupil who had served his apprenticeship to Mr. M. of Tunbridge. In the immediate neighbourhood of that town, there then grew, and is probably still growing, an uncommonly fine specimen of the shrub, of which the emmenagogue virtues were not unknown to some of the female inhabitants of the place. It was probably used by them, not unfrequently, as a simple emmenagogue in cases of accidental suppression of the catamenia; but the fact which the author wishes more particularly to advert to is, that during the years of his pupil's apprenticeship, Mr. M.'s professional services had been many times required in cases of abortions attended by alarming circumstances, which were acknowledged to have been induced in consequence of taking large draughts of a strong decoction made with the leaves of the notorious savin tree.

Of the emmenagogue powers of the ARNICA MONTANA, the testimonies are not numerous. This species of arnica or German leopard's bane was first recommended as peculiarly efficacious in bruises. From this notion was inferred its probable utility as a resolvent and deobstruent in cases of glandular obstructions. Experience it was asserted more than confirmed these views; especially when prescribed in pulmonary complaints, retention of the menses, hepatic obstructions, chronic rheumatism, some forms of dropsy, malignant dysentery, putrid diseases, intermittent fevers, amaurosis and other varieties of paralysis. The best

account of the general uses of the arnica was given by Dr. Colin of Vienna, in 1777. The part used is the flowers; and the formula recommended by that practitioner was that of an ounce and a half of the flowers, boiled for about three quarters of an hour in a quantity of water, which upon being strained should leave a pint of decoction; the whole to be taken in divided doses in the course of four-and-twenty hours. *Medic. Comment.* vol. v. p. 233. The arnica has not sustained in this country the high character bestowed upon it by Dr. Colin and other German writers.

MYRRH is a very old and favourite medicine in cases of amenorrhea. It is supposed to possess attenuant and deobstruent virtues; but whether and in what degree it may promote the catamenial secretion, there is not sufficient evidence to prove; our principal inference in its favour being deduced from the fact of its frequent employment as an emmenagogue. Myrrh, it is well known, is an important ingredient in Griffiths' tonic and antichlorotic mixture, now the *mistura ferri composita* of the London Pharmacopeia. The compound tincture of savin, *Pharm. Lond.* 1788, once designated *elixir uterinum*, and greatly celebrated as an emmenagogue, was considered to derive no small part of its efficacy from the tincture of myrrh, which entered into its composition. Myrrh has generally entered as an ingredient into popular female pills, and is still retained in two of the formulæ for such pills of the present Pharmacopeia of London. In confirmation of its pretensions as an emmenagogue, it may be incidentally observed that it has often been reprobated by French physicians as having a tendency to produce irritation of the bladder and bloody urine. The compound powder of myrrh, consisting of equal parts of rue, savin, myrrh, and Russia castor, *Lond. Pharm.* 1788, given in the dose of from five-and-twenty to thirty grains two or three times a day, is still esteemed an efficacious medicine in uterine obstructions and hysteria.

Of the pretensions of ERGOTED RYE as a useful stimulant of the uterus in cases of amenorrhea, the author is not able to advance any opinion founded on his own experience; nor is he acquainted with any recorded examples of its utility in the practice of others sufficiently detailed and circumstantial to induce him at present to form a positive opinion on the subject. On the whole, he thinks that the stimulant effects of the ergot on the unimpregnated uterus, have not been so satisfactorily proved by facts as

has been its influence on the same organ in its pregnant and still more remarkably in its parturient and puerperal conditions.

Among the agents calculated to produce important changes of action in the generative organs of females, CANTHARIDES must be considered as entitled to no inconsiderable distinction. Dr. Greenfield published a treatise on the safe internal use of cantharides in the beginning of the last century; but the efficacy of this remedy as an emmenagogue was never adequately proved before the earlier part of the present century, when Dr. John Roberton of Edinburgh made it the subject of several communications to the journalists of that period, and at least of two separate treatises, of which one was published at Edinburgh in 1806, and the other in London in 1811. Of its great utility in cases of dysmenorrhea and leucorrhea, some striking evidence will be furnished when we come to treat of those subjects.

Another remarkable agent possessing the power of exciting the generative organs of the female is ELECTRICITY. The principal diseases for which electricity has been prescribed have been those of the nervous system. Cases of atony, or of defective action of certain systems, as well as of isolated organs of the body, have occasionally been submitted to its influence. Hence examples are not wanting, though not numerously recorded, of its successful employment in amenorrhea. Our experience of its utility in cases of this kind, is more limited than it otherwise might perhaps have been, on account of the inconvenience of its administration, the ordinary mode consisting in passing slight shocks through the pelvis. The electric bath has been strongly recommended in cases of obstructed menses by some French writers.

It should be noticed as a subject of regret that the practice of medical electricity in this country has almost entirely been given up to incompetent charlatans. Full charges of this extraordinary agent are incompatible with feeble life. Hence the duty of abstaining from the use of it in cases of amenorrhea suspected to depend on pregnancy. The author was once consulted in a case of this kind, of which the subject was a young lady of about eight-and-twenty years of age, who was so circumstanced in her family and social relations as effectually to have eluded all suspicion of pregnancy, although she had not been able to conceal the fact of her catamenia having become obstructed. Whilst taking gently aperient combined with chalybeate medicines as a remedy for her amenorrhea, a private friend as was afterwards



stated suggested to her the great efficacy of electricity in such cases. She received this information without appearing to pay much attention to it at the time. The first opportunity however was made available by her to turn it to a practical account privately. An electrician of specious pretensions was forthwith consulted, and an ovum of about four months' gestation was dislodged within the same week, in consequence of the transmission by that person of moderate shocks of electricity as was represented through the region of the pelvis.

It has been said that in cases where electricity has failed to re-establish the suspended catamenial function, it has had the effect of inducing leucorrhea. It should however be observed, that independently of any agency of this kind, leucorrhea is very apt to supervene on suspended menstruation. *Mém. de la Société Royale de Médecine*, pour an. 1777-8, p. 405, et pour 1780-1, p. 264 et 413.

Of the utility of PRESSURE APPLIED TO THE EXTERNAL ILIAC ARTERIES as a remedy for amenorrhea, the general experience of the profession does not enable us to speak in very strong terms. The measure was first proposed about the middle of the last century, by Dr. Hunter, a physician then resident at Beverley, in Yorkshire. He communicated his idea to Dr. Archibald Hamilton, of Edinburgh. That gentleman availed himself of an early opportunity of putting the proposed power to the test of a trial, and the case proved successful. The practice has not been often repeated, nor has it in those cases in which it has been adopted proved so frequently successful as might have been anticipated from the above result of its first trial. Theory might furnish many objections to its employment; but it would seem quite unnecessary to go into the consideration of such objections; inasmuch as it probably may never be even tried upon an adequate scale by reason of the obvious inconvenience of its application. Dr. Home, in his *Clinical Experiments and Dissections*, observes, that compression of the external iliac arteries succeeded only in one case out of six. *Duncan's Medical Comment.* vol. vii. p. 217.

One great emmenagogue, perhaps the greatest actually existing, viz. MERCURY, remains yet to be noticed. This important agent as a deobstruent stands unrivalled in the *materia medica*; and it has often under judicious administration restored obstructed females to the due performance of the catamenial function, and

at the same time to the possession of their pristine health and strength, after a long list of other remedies had been tried in vain. This excellent medicine, however, has been so often abused, whilst its administration requires great judgment and discrimination, that there exists a pretty general prejudice both in and out of the profession against its employment in amenorrhea. In cases of recent obstruction for example, excepting as a purgative in combination with aperient medicines, there can be no necessity, nor even any propriety in the exhibition of any form of mercury.

This powerful agent is only proper in chronic cases, where the balance of the different actions of the body is become much disturbed, and where it may be a matter of considerable probability that organic disease may already be about to commence its dangerous operations. For cases of this kind, the administration of mercury AS AN ALTERATIVE is, in the opinion of the author, most unequivocally indicated. But it may be necessary to observe, that the term alterative is here used somewhat differently from what it frequently is by members of our profession; its more ordinary acceptation having for its object to express so limited an exhibition of the remedy as shall not produce perceptible and inconvenient effects. Excepting simply as a cholagogue in cases of torpor of the liver, the author does not think much of this very restricted mode of exhibiting mercury. In cases of much disturbance of the general balance of the functions, he feels perfectly assured that such a method of exhibiting it can seldom be expected to be productive of much substantial advantage. Without the excitement of some fever as a consequence of the use of the remedy, it would be quite idle to hope for so much change of action of parts and systems as would be necessary to counteract the diseased operations already existing or about to be established in the viscus or viscera principally interested in the patient's malady. To meet the demands of cases of positive visceral infarctions, this important remedy must be exhibited in sufficient quantity to produce ptyalism; otherwise the absorbents will not be excited to that vigorous and salutary action which we may presume to be quite essential to the removal of the morbid conditions in question, or even to the suspension of the diseased process or processes by which they might be expected to be continued and extended. This active treatment, it is obvious, might not suit cases of

extreme asthenia, nor could it be presumed competent to rescue their subjects from all the consequences of a feeble and temporising practice, nor from those of extensive ulcerations and other destructive ravages of incurable diseases of tissue.

The treatment here recommended, is answerable for its probably beneficial results only when IT IS DISCREETLY AND SKILFULLY MANAGED. An amount of pytalism only sufficient to be accompanied by a moderate excitement of the heart and arteries is required to be produced; and it is probably a matter of no great consequence whether that effect shall be produced by any one mode of administration of the remedy in preference to any other. Its introduction into the system by inunction of the femoral and crural surfaces might, by reason of the intimate connexion between the absorbents of the lower extremities and those of the pelvic and hypogastric viscera, be deemed an especially eligible method of administering it in cases of obstructed menstruation. The author, however, has not been able to establish any superiority in favour of that particular mode of exhibiting it. Two or three doses of calomel and opium, in the proportion of three or four grains of the one to two of the other, will generally suffice to produce an incipient effect upon the mouth. It will then be the interest of both patient and practitioner to proceed with caution. A distressing state of ulceration of the gums, tongue, and palate, should, for obvious reasons, be avoided; whilst at the same time a perceptible degree of soreness of the mouth, accompanied by some freedom of action of the salivary glands, should be produced and kept up for several successive weeks. The average period of a mild constitutional affection, INCLUDING THROUGHOUT THE WHOLE OF IT A MODERATE AFFECTION OF THE MOUTH, should extend at least over fourteen or fifteen weeks. At the end of that time, the patient will have acquired in most cases a considerably improved complexion. On the retirement of the local affection, when the tongue begins to clean, and to present indications of an improved condition of the stomach, she frequently finds herself disposed to relish food, and eventually becomes possessed of so good an appetite and power of digestion, as quite to surprise both herself and her friends. The general balance of the functions is at length adjusted. Some indications of the requisite fulness of the sanguiferous system, and especially of that portion of it which is expended on the uterus and its appendages, are sooner or later



manifested, and ultimately in cases curable by this powerful agent, the catamenial function is happily instituted or re-established. For cases in illustration of these views, see the 4th edition of the work, pp. 322 to 326 inclusive.

OF MENORRHAGIA.—This term would seem simply to convey the idea of an excessive flow of the menses. Inasmuch, however, as the uterus is not unfrequently the source of sanguineous discharges, unconnected or but slightly connected with the catamenial function, our neighbours the French have of late years substituted for menorrhagia the more comprehensive term *metrorrhagia*, as being better calculated to represent all discharges of blood from the uterus exceeding in quantity the natural produce of healthy menstruation. The menstrual evacuation, when it exceeds the limits naturally assigned to the function, thus ceases to be properly menstruation, and becomes uterine hæmorrhage. But as we shall have future opportunities of discussing the subject of uterine hæmorrhage as an affection of the pregnant and puerperal womb, we have here to give our exclusive attention to that of discharges of blood from the unimpregnated uterus.

This form of hæmorrhage presents itself most frequently at the menstrual period, and is therefore to be identified with that evacuation carried to excess; but it also sometimes presents itself during the intervals of two or more menstrual periods, and is then to be ascribed to other causes. The amount of the produce of the natural secretion varies greatly in different subjects, and not unfrequently in the same individual at different times, and yet without being productive of any marked difference in the general state of the health. Hence the difficulty of determining positively and with precision the true differential line between menstruation and metrorrhagia. English physiologists have generally maintained that proper menstrual fluid is not blood, from its wanting the coagulating principle; but this distinction, to say the least of it, if in point of fact it be well founded, can be of little value in practice; inasmuch as in almost every instance of excessive menstruation, the produce of the function is found more or less disposed to become partially coagulated. We have therefore to pay little attention practically to this supposed distinction, nor even in many cases to the quantity of fluid furnished by the function; but rather to be guided in our indications by the results of its supposed excess on the constitution, and by the functional derangements we may presume to be produced by it.

*Metrorrhagia* may present itself under three distinct forms. The material of the function may be furnished at each period in excessive quantity; or the quantity during any part of the period may not be immoderate, but the period may occupy too many days; or the periods themselves may too frequently succeed one another, the intermediate intervals falling short of their natural and proper duration. It sometimes happens that these several modifications of *metrorrhagia* are complicated in the same subject, so that for example menstruation may be observed to return with too great a frequency, occupy more than the ordinary time, and furnish during each period an excessive quantity of the produce of the function. It sometimes happens that the evacuated fluid is distilled in a small quantity; but the process is continued for a long time, so as to become almost constant, the return of the periods being distinguished only by an increased and greater consistence of the discharge, and in some cases by a greater vividness of its colour. This form of *metrorrhagia* has been designated by some authors *menses stillantes* and *menorrhagia stillantia*.

THE PROXIMATE CAUSE of *metrorrhagia* is probably a state of excessive plenitude of the secerning vessels of the uterus, which, by over-distending them, and co-operating with the arterial propelling action bearing upon them from behind, has the effect of increasing the activity of the process of transudation by which the menstrual evacuation is produced. Another proximate condition of the menstruating vessels in such cases may be an enfeebled tone of their parietes.

Among the PREDISPOSING CAUSES of this particular form of hæmorrhage, we may notice as the principal, AGE, EXCESS OF SENSIBILITY OF THE UTERINE SYSTEM, and A CONSTITUTIONAL OVERFULNESS OF THE SANGUIFEROUS SYSTEM, especially of that part of it appertaining to the uterus and its appendages. With respect to the influence of age as productive of a predisposition to *metrorrhagia*, it is obvious that this latter must be greater during the menstruating portion of a woman's life than at any other time. It is however greatest at the periods respectively of the establishment and cessation of the menses. Other periods of life are not however exempt from hæmorrhages. La Motte refers to cases of hæmorrhages from the uterus in very young subjects, many years before the ordinary period of the establishment of the menstrual function; whilst experience amply proves, that women

are not unfrequently brought to an untimely grave by profuse discharges of blood, usually the accompaniments of organic diseases, subsequently to the final cessation of the menses. Excessive sensibility of the uterine system is sometimes constitutional and even hereditary. In other cases it may well be supposed to be superinduced by circumstances and opportunities, more than usually favourable to sexual excitements and indulgences. On either supposition it should be considered as a powerful predisponent cause of menorrhagia. It has moreover been observed, that women who experience many miscarriages in quick succession, are rendered afterwards especially liable to profuse menstruations. We are informed by foreign writers that the use of foot-stoves has often been known to predispose to similar results; and the same thing may be stated of temperature, regimen, modes of living, and many other luxuries, which are peculiarly at the command of the prosperous and the opulent. Profuse discharges of blood from the womb may not unfrequently be observed to supervene on a previous suppression of the menstrual function. It is, moreover, a fact well known, that the newly-married are frequently subjects of a more than usually abundant secretion of the menses. Many of the circumstances which may be considered as predisponent to excessive sanguineous discharges, are such as should also be enumerated among their occasional causes.

The principal OCCASIONAL CAUSES of menorrhagia and other forms of excessive discharges of blood from the uterus, are violent actions and exercises of the body; sudden shocks, whether of the mind or of the body; fatiguing rides; great exertions in singing, sneezing, and other actions of the respiratory organs; accidents from falls, especially if the parts about the sacrum and nates are found to sustain the principal injury; the action of some of the more tempestuous passions, as those of rage and terror; stimulating vaginal injections; irritating and ill-adapted pessaries; local excitants, of whatever kind; and finally, diseased states and morbid contents of the uterus itself. There is yet another class of causes which require to be noticed; viz. those which we observe to depend on primary actions of distant organs. Hence it has been remarked, that inflammatory bilious fevers and acute gastric diseases have not unfrequently been attended by profuse and often critical discharges of blood from the uterus. The presence of worms in the intestines has sometimes been known to have kept



up for many months a constant stillicidium of blood from that organ.

The character and consecution of symptoms incident to metrorrhagia may usually be observed to depend on the nature and peculiarity of its occasional cause. If the occasional cause be violent, the effect may take place either simultaneously or almost immediately afterwards. A woman who may happen to fall on her nates may find herself in an instant bathed in blood. It, however, more frequently happens that the hæmorrhage presents itself after a considerable interval of time subsequently to the application of the cause; and in that case we may usually recognise certain symptoms indicative of congestion in the vascular system of the uterus. In either case, and perhaps nearly equally, the discharge of blood may become so formidable as to expose the patient's life to imminent danger. An accidental cause may possibly happen contemporaneously with the regular menstrual period, when the result might be expected to be attended with greater danger. Such cases would especially require prompt and active treatment.

Hæmorrhages, arising more especially from the operation of predisponent causes, are established more slowly, and are often preceded by premonitory symptoms, which may suggest very important prophylactic measures. In some cases the indications amount to little more than to a certain feeling of general uneasiness, accompanied by slight aching pains of the hypogastrium and loins, or by a sense of numbness or creeping coldness of the surfaces surrounding the external genitals. More frequently, however, such discharges of blood from the uterus are preceded by an increased fulness of the mammæ, by a feeling of tension in the loins, by a sense of more than ordinary plenitude, weight, and heat, and also by pains in the sacral and hypogastric regions, in some cases by constipation, general lassitude, and by acceleration of the pulse. To these symptoms succeed paleness of the countenance, contraction of the features, a sense of coldness of the extremities, and indeed of the whole surface of the body, accompanied in many cases by slight shiverings, and finally, and on the eve of the bursting of the dreaded torrent, a sense of great heat and pruritus in the genital passage. The flow of blood seems for a time to give relief from the pain and annoyance of the symptoms now described: but if the discharge becomes formidable by its quantity or duration, other symptoms still more

distressing will present themselves in a rapid and alarming succession; viz. fainting, with or without an intense pain at the pit of the stomach, extreme paleness of the lips and of the whole face, great feebleness and smallness of the pulse, great diminution or entire suspension of the power of vision, tinnitus aurium or even abolition of the sense of hearing, loss of consciousness, embarrassed respiration, ghastliness and distortion of the features, convulsions, and death.

But the above symptoms do not always follow in the same order of succession. In cases of women of a nervous temperament, disturbances of the nervous system present themselves at an early period of the discharge, and frequently before any alarming loss of blood shall have been sustained. Of these we may first notice an intense pain of the head; in some cases chiefly occupying the forehead, but most frequently the occiput. This pain, accompanied as it generally is by a distressing sense of throbbing, usually continues for many days and sometimes even for weeks after the cessation or subduction of the hæmorrhage. If the hæmorrhage, without involving the case in great jeopardy at any one time, is frequently repeated, or is prolonged in duration beyond certain limits, the digestive organs are apt to become seriously deranged. The patient loses her appetite. She becomes the subject of a constant sense of weight and oppression at the stomach. She gradually or rapidly, according to the amount of her successive losses, sinks into a state of languor and extreme feebleness; she becomes pale and emaciated; loses at once her spirits and her strength; her feet and legs become anasarcaous; then the abdomen, or chest, or the ventricles of the brain, or perhaps all these cavities together, become the seat of dangerous hydropic effusions. But very profuse menstruations, and even uterine hæmorrhages involving ultimately the most serious consequences, may continue to harass their subjects for many years without inducing the terrific series of symptoms just enumerated. In many cases the metrorrhagia assumes a more moderate and passive character. The blood then lost, is of a less arterial hue; it is of poorer quality, being much more serous, and is usually furnished during each hæmorrhagic effort in much less abundance. Menorrhages of this variety are frequently succeeded during the menstrual intervals by more or less profuse leucorrhœal discharges.

OF THE PROGNOSIS.—The prognosis in cases of metrorrhagia

must obviously be founded on the nature of their cause or causes, on the intensity of the accompanying or consequent symptoms, on the duration of the malady, and on the strength of the subject. Discharges of blood depending on temporary excitements of the sanguiferous system, or on any other transient causes, frequently cease spontaneously, and are generally easily subdued. At all events, they are only dangerous when they present themselves in extraordinarily profuse quantities. Long-protracted cases are of course to be considered as more dangerous than those of once or twice repetition. Those which are become chronic, and also profuse in quantity, are usually rebellious in their management and disastrous in their issue. The profuse losses of blood which are sometimes sustained by young females about the period of the first appearance of the catamenia, are for the most part exclusively incident to that period, and rarely return after the complete establishment of the function. A similar remark may be made in respect to the alarming profuseness and irregularity of the menses in some cases at and about the dodging period antecedently to their final cessation. If complicated at that period with an organic disease of the uterus, our prognosis of course would be less favourable.

OF THE TREATMENT OF METRORRHAGIA.—The general rules of treatment in hæmorrhages from the unimpregnated uterus, are also for the most part applicable to cases of simple menorrhagia; the means which are best calculated to subdue the excessive discharges in the one case, being generally such as are best adapted to restrain it in the other. In the management of both classes of cases, we have usually three principal indications to meet. In all cases we have for our first object to remove the causes of the discharge, if they still continue to exist, and if they are supposed to be of such a nature as to admit of being removed: secondly, we have to arrest the flooding; and, thirdly, we have to prevent, if possible, the return, and to protect the patient against the effects of future hæmorrhages. This last indication is more especially deserving of our attention in cases of periodical menorrhages.

In fulfilling the first indication, a deliberate consideration of the nature of the cause or causes will often suffice to suggest the remedy. Among the predisponent causes, we may observe that a plethoric state of the sanguiferous system is one of the most frequent. In that case the hæmorrhage itself is often an effica-



cious remedy. But this remedy is not always convenient, nor capable of being restrained within safe and proper bounds ; and it is further objectionable on the ground of its liability to dispose the uterus to become the seat of future hæmorrhages. For these reasons we prefer to arrest the spontaneous hæmorrhage by having recourse to artificial bleeding. To relieve the uterine congestion, it may often be very proper and necessary to abstract blood, from time to time, from the genitals by leeches, or from the sacral region and the part immediately adjoining by cupping. In these cases, moreover, the greatest attention should be paid to the very important subjects of diet and personal exercise. As a general rule, the one should be much reduced, and the other correspondingly augmented. During the presence of the hæmorrhagic nîsus the patient should observe the most rigid quiescence in a horizontal position. Her bed should be comfortable, without being too soft, and her chamber agreeably cool and well ventilated. If it should become necessary to apply cold to her person, the application should be quickly made and only partial. If the stomach be embarrassed, or otherwise deranged, the exhibition of an emetic will be found both a safe and speedy remedy. Constipation of the bowels is sometimes an attendant, if not a predisponent cause, of uterine congestions and hæmorrhages. Their solution should be freely promoted, first by an active enema, and afterwards by a purgative, consisting of calomel and jalap, followed by saline aperients.

To meet the demands of our second indication, viz. that of arresting the discharge of blood, when by its profuseness or long continuance it threatens to involve the patient's life in jeopardy, not only must some of the above measures be adopted with great promptness and vigour ; but some others, and especially the use of the plug, will be required to be added to them. It is scarcely necessary to observe, that under the circumstances now supposed the artificial abstraction of blood could not for one moment be entertained ; and even the exhibition of an emetic might perhaps be attended with some risk. The application of cold should not be too long persisted in, as it might have the effect of confining the circulation too much to the interior of the body. In cases of extreme exhaustion from the loss of blood already sustained, it may sometimes be necessary to have recourse to the use of stimulants, such as wine, brandy, ammonia, laudanum, etc. But this part of the treatment of hæmorrhages will present

itself for more ample discussion under a future head of subject.

Our third indication, that of preventing the recurrence of hæmorrhages in future, applies more especially to cases of great constitutional predisposition to menorrhagia and periodical hæmorrhages. One of the first things to be done to prevent the return of a hæmorrhage, is to meet the claims of our first indication by removing, if possible, the cause or causes known to have first produced it. We then place the patient under a strict regimen. Her food should be bland, moderately nourishing, and easy of digestion. It should consist principally of milk and plain puddings. Regular exercise should be enjoined during the intervals between the menstrual periods. On the approach of the next expected period, all personal exertion should be suspended, and the utmost repose both of body and mind strongly recommended. Country residence, if equally convenient or attainable, should be preferred to a town life. Heated and crowded rooms should be avoided, as should also soft beds and excessive indulgence in sleep. All dissipated pursuits, all interruptions to a calm quiet life, and all means and opportunities calculated to excite voluptuous and other high-toned passions should be most positively proscribed. Moderate bleedings, repeated from time to time, from the arm, AND ESPECIALLY HAD RECOURSE TO A FEW DAYS BEFORE THE EXPECTED APPEARANCE OF THE MENSES, would, in many cases, form so important an item in the treatment, that it could not often be dispensed with without great disadvantage.

In cases of passive metrorrhagia, and in all others in which it should be an object to produce permanent effects, and to remove a functional disorder already become habitual and obstinate, the practitioner must rest his principal dependence upon the advantages to be derived from the observance of a strict and judicious regimen in the most enlarged sense of that expression.

The use of tonics is not unfrequently indicated as important auxiliaries to the effects of a suitable regimen. The best tonics are, the quinine, preparations of iron, and the mineral acids. Cold and sea bathing are frequently prescribed in these cases with much benefit. The hip-bath and injections of cold and astringent fluids into the genitals have also sometimes been attended with excellent effects. When all these measures fail, the author feels authorised by the results of his own experience

to recommend the exhibition of a full, but cautiously administered, charge of mercury. In the absence of organic disease of the uterus, that great remedy would rarely fail to effect the subduction of the hæmorrhagic habit, and to restore the patient to her former state of health and strength.

OF DIFFICULT MENSTRUATION. — Dysmenorrhea, Menorrhea difficilis, stranguria menstrualis, hysteralgia catamenialis, is a tedious and painful performance of the catamenial function. The quantity of the menstrual fluid is generally sparing when the function is attended with more than usual pain and distress to the patient, although this is not to be considered as essentially characteristic of dysmenorrhea ; nor is the length of time which the period may occupy necessarily a part of its definition, although it embraces in some cases a greater number of days, and in others fewer than it is usual for the function to occupy under different circumstances.

OF THE PROXIMATE CAUSE OF DIFFICULT MENSTRUATION.—The proximate cause of dysmenorrhea is almost always obscure, if not impossible to be determined. It may be supposed in some cases to be an inferior degree of the same proximate condition of the secerning organ, which may be presumed in a greater degree or in a more intense form to be productive of complete suppression of the menses. It is probable that the impediments during the early stages of both forms of uterine derangement may often be exclusively functional ; but the terms which have been usually employed to represent such a state of action of the parts concerned, have not so much expressed known facts as theoretical notions and assumptions of the parties using them. In reality we do not know, and perhaps cannot positively know, the essential condition of an organ, however peccant, which we assume to be only functionally diseased. It may however be easily understood that, when a viscus shall have been painfully affected for many years, though for a long time only functionally embarrassed and disturbed, it will seldom ultimately escape becoming the seat of structural disease. Accordingly modern pathology has pretty satisfactorily established the fact, that long-continued disturbances of the functions of the uterus seldom or never fail to terminate in some form or other of disorganization of its own or dependent tissues. This statement will be especially illustrated when we come to treat of the subject of leucorrhea.



The symptoms of dysmenorrhea are very numerous and multi-fold. They are, pains in the hypogastric and lumbar regions; aching pains of the thighs; a sense of numbness and inertia of the lower extremities generally; a sense of great fulness and tension in the region of the uterus; pain and a sense of fulness in the head not unfrequently followed by epistaxis; difficult and oppressed breathing; indisposition and inability to make any personal exertions; a teasing cough from an overfulness of the bronchial vessels, accompanied in some cases by hæmoptysis; disturbances of the gastric functions, such as nausea, vomitings, cardialgia, gastrodynia, flatulencies; faintings; hysterical and other nervous affections; gradual diminution of the menstrual secretion, and final establishment of an obstinate chlorosis. The more urgent pains incident to difficult menstruation are commonly referred to the uterus itself. In some cases they are said to be accompanied by a sense of throbbing, as if depending upon inflammatory action; whereas in general they are described as being intensely aching pains, as if more dependent upon a certain condition of the nerves of the uterus. During the intervals of painful menstruation, the patients are in most cases subject to a profuse leucorrhœal discharge.

The treatment of dysmenorrhea must have two principal indications for its object; viz. first to relieve the present symptoms, and eventually to cure the disease by the subduction and removal of its cause or causes. For a more adequate discussion of these subjects, the author has to refer his readers to the next article; the treatment of dysmenorrhea being in many cases to be identified with that of fluor albus.

OF LEUCORRHEA.—Fluor albus, fluor vel fluxus muliebris, fluxus matricis, fluxio alba, profluvium muliebre, distillatio uteri, menses albi et menstrua alba, menorrhagia alba, alba purgamenta, uteri coryza et rheuma, uteri rheumatismus, blenorrhea benigna, etc. Leucorrhœa is literally a white discharge: but the word has been used, in common with its numerous synonyms, to express great varieties of non-menstrual discharges from the female genitals. We may briefly define it as a morbid secretion of the complicated tissue which forms the internal surface continuously of the vagina, the uterus, and the Fallopian tubes.

The essential symptom which the term leucorrhœa literally expresses, viz. the mucous defluxion from the female genitals, is usually preceded by an increased redness of the affected

surfaces, and also by exquisite pain on exposure of the part to the slightest cause of irritation. These are followed in the course of a longer or shorter period, generally in two or three days, by an irregular discharge of a fluid of variable colour, consistence, and quantity from the vulva; accompanied by a sense of heat and pruritus, which the patient indistinctly refers to the uterine region; difficulty and a scalding heat of the orifice of the urethra in making water; a dull aching pain in the hypogastrium, sometimes extending to the groins and to the inside of the thighs, and likewise to the loins and sacral regions; an inflammatory enlargement of bulk of the papillary prominences, and in short of all the constituent tissues proximately implicated in the disease; excoriations of the sexual surfaces; in some cases, likewise, by an inconsiderable descent of the uterus, probably to be ascribed to increase of its size and weight; and also generally by a more than ordinary patulency of its vaginal orifice.

Practical writers on this subject have distinguished leucorrhœa into acute and chronic; and the distinction is indeed very important in practice. The first invasion of the disease is almost always characterised by the presence of acute symptoms. Under the circumstances of that form of fluor albus, its symptoms have sometimes been distributed into certain consecutive assemblages, so as to form distinct periods of the malady. Those of the first period are a pruritus of the sexual surfaces extending along the vagina as far as the uterus, gradually increasing in degree so as ultimately to become intolerable, together with a frequent desire to void the contents of the bladder. The second period commences on the third or fourth day with a slight discharge of a clear viscid fluid from the vagina, accompanied by great heat of the surfaces previously the seat of the pruritus. The material of the discharge increases rapidly in quantity, and its colour becomes yellowish or green. The ardor urinæ also greatly increases in intensity. These symptoms are accompanied by a sense of painfulness and throbbing of the labia pudendi and perineum, and by the deep aching pains of the parts within and in the neighbourhood of the pelvis already adverted to. At this period there is often present some degree of febrile action. This first stage of the malady is usually of four or five days' duration. On the accession of the third period, the inflammatory symptoms become less intense; the discharge assumes a deeper colour, thickens in consistence, and diminishes greatly in quantity. The

fourth period is marked by some changes and alternations in the appearance and quantity of the profluvium ; it being sometimes more abundant, and nearly transparent, and at others less in quantity, and of a creamy or milky white colour. It then retires for a few days and again returns. It usually disappears altogether in about five or six weeks from the date of its commencement.

The symptoms of chronic leucorrhea, are those principally of extreme irregularity in the date and consecution of its phenomena, and an almost perfect absence or very slight and uncertain returns of inflammation. It is also characterised, by the little or no manifestation of a disposition towards a perfect recovery, by the cause of its accession being frequently unknown and unascertainable, in other cases by its being known to be the sequel of acute leucorrhea, and finally by its unlimited duration.

Practical and systematic writers have moreover introduced many useful distinctions into their pathological histories of leucorrhea, founded on their apprehension of the causes of the disease, and on the characteristic appearance and other sensible properties of the material of the discharge. It has been already stated that Hippocrates distributed leucorrhea into ten separate varieties. Some of his successors carried the number up to seventeen. Sauvage reduced the ancient number to nine ; Raulin, *Traité des Fleurs Blanches*, further reduced it to seven ; and Cullen, *Nosolog. Method.*, to two. The following series of epithets will give the reader a sufficiently practical idea of the principles on which different writers have founded their respective divisions and subdivisions. Leucorrhea aquosa, serosa, lymphatica, albida, viscosa, filamentosa, purulenta, lactoides, biliosa, uterina, vaginalis, simplex, complicata, recens, diuturna, intermittens, ulcerosa, fungosa, syphilitica, canerosa, Americana, Indica, scirrholdes, gravidarum, Nabothi, constitutionnelle, metastatique, symptomatique, etc.

OF SOME OF THE PRINCIPAL PHYSICAL PROPERTIES OF THE DISCHARGE CONSTITUTING FLUOR ALBUS.—The quantity of the morbid fluid furnished by this disease varies according to circumstances. In acute cases it is much less in quantity in the first than during its third stage, and less still in every stage of the acute disease than we now and then meet with under chronic forms of the same malady. When it is considered that the extremes vary in this respect from a few drops, scarcely sufficient to soil the patient's ordinary linen, to several pounds daily, the reader will



form some idea of the endlessness of the intermediate varieties. This variation in the quantity of these defluxions, in different cases, is no doubt to be attributed to the diverse influences of seasons, temperaments, places of residence, states of gastric and other functions, and all conditions and circumstances that may have a tendency to enhance the intensity of the disease. Thus it is a long-observed fact, that in chronic cases of this affection, the discharge is much more abundant in the winter than during the summer season. The reader may consult an interesting case in illustration of this point in *Silvaticus' Consilia et Responsa Medica*. Cent. iv. No. 19. Very plethoric women, of a leuco-phlegmatic temperament, and of indolent habits, are especially liable to have these defluxions in profuse quantities. Leucorrhœal discharges are, moreover, much more abundant, as well as more frequent, amongst the residents of cold, moist, and marshy districts, than amongst those of dry, elevated, and open countries. It was the opinion of Sanctorius, that leucorrhœal patients are more or less the subjects of these morbid secretions, in proportion as the functions of the skin are more or less vigorously performed. They may likewise be easily supposed to be greatly influenced by the more or less healthy condition of the digestive organs. Stahl, *Colleg. Casual. Magn. Obs.* 68, p. 673, quotes the case of a female, who, by being accidentally guilty of excessive indulgence in the pleasures of the table, had the misfortune to enhance exceedingly the intensity of her malady.

The shades of colour of different specimens of fluor albus are almost endless. In Blatin's work, entitled "*Catarrhe Uterin. ou des Fleurs Blanches*," p. 33, we are furnished with a tabular sketch of the proportional frequency of the more common colours of these discharges. In a table of twenty-two cases the proportions are, of yellow and green twelve, of white six, of greyish two, of blackish one, and of bluish one. These several varieties of colour of morbid discharges from the genitals do not depend upon their sources being uterine or vaginal, as has been thought by some authors, Severin Pineau, *De Notis Virginitatis*, probl. 3, but rather on the forms and degrees of inflammation of the actual surfaces, whether uterine or vaginal, by which they are secreted.

The consistence of the material of the discharge is also as variable as its quantity and colour; the variations in this respect presenting at one extreme, the limpid liquidity of serosity, and at the other the glutinous viscosity of semi-coagulated albumen.

A similar observation is applicable to the odour of discharges from the female genitals. The odour of these discharges, even in their healthy state, is peculiar, and certainly not, under any circumstances, agreeable; but they moreover present such characteristic differences of foetor, as often enables experienced practitioners to judge of the morbid condition of the passages by which they are furnished. For example, the odour is not unfrequently characteristic of incipient putridity, as sometimes happens from simple stagnation. In other cases, as during pregnancy, it gives the idea of an acrimony approaching to a degree of alkalescency. The presence of foreign bodies in the vagina, as that of sponges and other pessaries, or of specific diseases, as of polypi and other fungoid excrescences, cancerous ulcerations of the internal genitals, and charges of morbid substances within the uterus, are respectively attended by discharges of which the odours are so peculiar and so different from each other, as are those of rue, roses, and asafoetida. Nicholas Pechlin, *Observationes Medico-Physicæ*, lib. i. Obs. 21, speaks of a lady who had the curiosity to taste the substance in question, and who reported "that its flavour was excessively acrid and lixivious, and that her mouth was so infected with it, as to oblige her to use a gargle to rid herself of it." Under certain peculiarities of circumstances incident to these discharges it has been repeatedly asserted, that ascarides and other varieties of worms have been generated within the female genitals and from time to time voided by the external orifice, accompanied by a most abominable foetor. Jean Storch. *Observation. Cliniq. an. viii. No. iii. p. 463.* Cockson, *Comment. Medic. No. iv. p. 88.* Mauriceau, *Art des Accouchemens, Observ. Chirurg. Cent. i. Obs. 61.* Ovelgunius, *Nova Acta Nat. Curios. tom. iii. Obs. 60.* Blatin, *Catarrhe Uterin. p. 39.*

OF THE SOURCE OF FLUOR ALBUS.—It was once a very general opinion, and it more or less prevailed from the time of Hippocrates to that of Boerhaave, that different parts of the body might be sources and agents in the production of the subject matter of leucorrhœal discharges, as the stomach, liver, spleen, etc.; and that the uterus only performed the office of a common emunctory. Avicenna, *Tract. iii. cap. 32*, was probably the first writer who considered the menstruating vessels of the uterus to be the source of fluor albus. Fred. Hoffman, in adopting the same opinion, distinctly states, *De Cachexia Uteri*, "that the seat of the cachectic disease is altogether the uterus." Plater,

De Aquosis Excretis, lib. ii. cap. 7, maintains that the menstrual secretion is a produce of the uterus itself; but that the matter of leucorrhœa is furnished by the neck of the womb. De Graaff, on recognising the excretory orifices of the muciparous glands about the orifice and within the neck of the uterus, as also those about the orifices of the vagina and urethra, felt himself justified in suggesting what he considered a new doctrine upon the subject, viz. that fluor albus is the produce of a diseased action of the glands in question. This opinion, as far as it went, may be considered as well founded. But it has been proved by the ulterior researches of Charleton, Boehmer, and Morgagni, that all the internal surfaces both of the uterus and of the vagina, of either the one or the other, and also partially or wholly, may be the source of fluor albus.

OF THE PROXIMATE CAUSE OF LEUCORRHEA.—The proximate cause of the morbid discharges now under consideration, in common with that of most other diseases, is involved in much obscurity. It must of course consist in a morbid action of the muciparous glands, exhalant arteries, and possibly of some other primary tissues of the mucous membrane concerned.

OF THE PREDISPONENT CAUSES OF LEUCORRHEA.—The remote causes, whether predisponent or occasional, are very numerous. Of the former, many are unavoidable as to their influence; being physically inseparable from the constitution and mode of being of the subjects in which they inhere. Among the circumstances referred to, age or period of life may be cited as a principal example. It is indeed well known, that no age is exempt; but experience has equally established the fact, that leucorrhœal discharges are much more frequent between the ages of puberty and of the ordinary cessation of the menses, than at any other period of life. In a calculation on this subject, founded on observation, Blatin has grouped the results of his experience under the heads of three principal epochs of life: viz., 1st, of the years preceding the establishment of the menstrual function; 2nd, of the menstruating years of a woman's life; and 3rdly, of the years intermediate between the cessation of the menses and the close of life. This distribution can scarcely be said to be arbitrary; inasmuch as it is obviously founded upon circumstances which are constant in their influence, and which are moreover known to exert great influence in the production of uterine catarrhs. The proportional frequency of leucorrhœal discharges as given by



M. Blatin at the three given epochs of life just mentioned are as follows: out of a hundred and thirty-five subjects of fluor albus, fifteen belonged to the first epoch, a hundred and six to the second, and fourteen to the third. Blatin, *Des Fleurs Blanches*, p. 42.

It is a general opinion that a *LEUCO-PHLEGMATIC TEMPERAMENT* greatly predisposes to uterine catarrhs. However that may be, there is no question as to the influence in this respect of an unusually delicate constitution, whatever we might find to be its accompanying temperament. It is therefore a very well-founded general observation of Baillou, that "*Quo enim magis ægrotantes extenuantur, partes replentur muco.*" There is moreover no question as to the existence in certain families of a *HEREDITARY PREDISPOSITION* to leucorrhœal discharges.

A lady, of about thirty-five years of age, once consulted the author for fluor albus, from which she had been more or less a sufferer since she could remember. Her constitution was leucophlegmatic. She was fond of society; but by reason of the great delicacy of her health, she was frequently obliged to deny herself the enjoyments of it. Her mother, who was then living, had also been subject, during the greater part of her life, to delicate health and to leucorrhœa. In the course of the author's attendance, his patient requested his attention to the state of health of three of her daughters, children between ten and four years of age, who had all become the subjects, within two or three days of each other, of a profuse leucorrhœal discharge. Their bowels were stated to be considerably disturbed; but no other cause could be assigned for the accession concurrently in the three cases of a diseased action of surfaces so seldom presenting itself in young children. The children were easily cured by a few doses of active purgatives. The mother's case was treated by cantharides, by the use of which she was very substantially benefited. The following tracts on the subject of leucorrhœa are all worth perusal:—Raulin, *Traité des Fleurs Blanches*, tom. i.; J. Galbrand, *De Sanguifluxu Uterino*, p. 34; M. Mahon, *Mémoires de la Société Méd. d'Emulation*, tom. iii.; M. Ramel, *Journal de Médecine*, tom. lxiv. A series of cases in illustration of the same fact by M. Blatin, *Catarrh. Uterine*, p. 289.

CERTAIN CONDITIONS OF THE UTERUS as to volume, position, organization, and functional relations to other organs, might be presumed in many cases to predispose to leucorrhœal discharges.

It is well known what important results in this respect are produced by descents of the womb. The uterus is also often much enfeebled in its tone by the prodigious distension which it has successively to sustain during gestation. Accidental injuries inflicted on it must obviously predispose to similar results. Sabizius de Affect. Mulier., tom. ii. cap. 10.

RESIDENCE IN COLD AND HUMID COUNTRIES has been frequently quoted by authors among the influences predisposing to leucorrhea. Silvius de Le-Bœe, a Dutch physician, observes, *Prax. Médic. lib. iii. cap. 4*, that "the cold and humid atmosphere and marshy soils of Holland and Belgium have the effect of rendering fluor albus endemic in those countries; although the women endeavour to modify those influences by the use of spirituous liquors and tea." Leucorrhœal discharges, in common with other catarrhs, are said to be endemic at Berlin, where it is supposed to depend upon the peculiar locality of that city, which is low and surrounded by marshes. *Decad. ii. Act. Médic. Barolin. tom. iii. et iv.*

It is said that THE AUTUMN predisposes to leucorrhœa more than any other season of the year. This we may well presume can only depend on the special influence of that season on the constitution of the atmosphere. Raulin states, that in August and September 1765, when the weather at Paris was remarkably hot and dry, many women were attacked with fluor albus who had never experienced it before, and that many of those who had, became then much greater sufferers from it. Diseases of the skin, phlegmonous tumours, measles, small-pox, and sore throats, were likewise very prevalent at the same time. Leucorrhœal profluvia were endemic at Berlin, in December 1722; when it is also stated that pulmonary catarrhs were exceedingly prevalent. The year 1769 was remarkable for the unusual frequency of its changes of temperature. During the Christmas of that year there was a sudden transition from an extraordinarily high temperature to that of extreme cold. It is observed by M. Blatin, p. 76, that in a small town in France there were, during that period, sixty of its female inhabitants of all ages seized with profuse leucorrhœal discharges, in consequence, as was supposed, of the sudden change in the temperature of the atmosphere. Many English writers have considered the frequency of fluor albus in this country to be principally ascribable to the frequency of its atmospheric changes.

Under the head of atmospheric influence may also be noticed that of SUPPRESSED PERSPIRATION. When the insensible perspiration is suspended, that function is very liable to be for the time superseded by the substitution of some other evacuation, as epistaxis, hæmorrhoids, diarrhea, etc.; but perhaps principally in females by leucorrhea. It is manifest that deficient clothing in cold and variable seasons may not a little contribute to predispose to leucorrhœal discharges, by causing the exhalant action of the vessels of the skin to be diminished or suppressed.

THE ACTION OF CERTAIN FORMS OF DRESS, as that of tight stays, and ligatures of other vestments too tightly applied round the waist, might also seem calculated, as some authors have actually maintained, to produce a plethoric state of the uterine system, and thence necessarily a predisposition to fluor albus.

DERANGEMENTS OF THE FUNCTIONS OF MENSTRUATION AND LACTATION deserve nearly equally to be considered as predisponent causes of uterine catarrhs.

THE OCCASIONAL CAUSES OF LEUCORRHEAL PROFLUVIA are so numerous as not to admit of being illustrated, however briefly, by reference to particular cases. A mere enumeration of them must therefore, for the present, suffice to give the reader a practical idea of their amount and importance. The following list, it is presumed, will be found to include the greater number of them; viz. sudden changes of climate; great or sudden depression of the general health from whatever causes; the presence of morbid substances within the uterus, as of portions of retained placenta, molæ, masses of hydatids, and remnants, in whatever forms, of blighted ova; tumours of almost all varieties adherent to or dependent from any of the genital surfaces; irritation from pessaries and other foreign bodies introduced into the vagina; excessive indulgences of the sexual passion; mercurial frictions, Pinel, Cours de Pathologie; the drinking of unwholesome waters, and the injudicious use of mineral waters; deficient and irregular action of the function of digestion; constitutional taints, as of gout, scrofula, syphilis, etc.; sudden repulsion or retrocession of cutaneous eruptions; translations of purulent and other morbid deposits; suppression of accustomed evacuations, although in some cases the results of diseased actions, as of coryza, excessive expectoration, hæmorrhoidal discharges, diarrhea, spontaneous vomitings, etc.; neglect of habitual bleedings; incau-



tious drying up of issues, setons, perpetual blisters, etc. ; febrile diseases ; gestation ; abortion, and especially a succession of abortions ; parturition and the consequences of slow recoveries ; in female children difficult dentition ; and in females of all ages the presence of ascarides in the rectum ; and finally, all depressing moral influences.

OF CERTAIN MORBID EFFECTS OF LEUCORRHEA.—The morbid influences of leucorrheal discharges are first those which affect the organs immediately concerned, and secondly, those which disturb the general health. It is a fact that structural diseases of the uterus and its dependencies are often preceded during many years by fluor albus. Dropsies and cachectic diseases of various names and forms are consequences and probably effects of chronic leucorrheal profluvia. We may indeed observe, that the functions of sense and even the faculties of the mind are not unfrequently injured by profuse and long-continued leucorrheal discharges. Among the inconvenient effects of profuse fluor albus, is one which in the connubial state is a very frequent attendant upon it, viz. an almost absolute indifference to the conjugal embrace. In some cases, indeed, a stronger expression might be made use of to represent this fact. The opinion of a distinguished female well versed in matters of this kind will be received by the reader at least with candour. “*Quibuscumque matricis humor ad vulvam respondet, harum corpus frigidum est, nec possunt aliquo modo masculi cōitum gratum habere : frigidum vero corpus intrinsecus habent usque in extremas partes.*” Cleopatra, *De Matrice Humerosa*.

Sterility should be placed amongst the occasional results ; although it is not essentially and invariably an effect of fluor albus. An ancient poet, who was also a great high-priest of nature, was no doubt well aware of this fact when he propounded the following explanation of it :

“*Nam steriles nimium crasso sunt semine partim,  
Et liquido præter justum tenuique vicissim.*”—LUCRET. *De Natura*.

Some authors have ascribed the very dangerous form of ophthalmia which sometimes attacks infants immediately after birth, to their exposure to the infecting virus of leucorrheal, or perhaps of morbid secretions of a more specific character, during their transit through the maternal passage. Experience very much sanctions this conjecture.

The injuries sustained by the general health from leucorrhœa in its most severe forms are so numerous as to include in their catalogue, besides many others, almost all the cachectic diseases to which the human female is liable.

But uterine profluvia are not only thus injurious by the direct effects which their presence and long continuance scarcely ever fail to produce; but also often indirectly by being suddenly diminished and suppressed. When these discharges have been established for many years, their sudden suppression seems to be scarcely less dangerous than that of the catamenial function itself; and we may moreover observe, that the effects of the suspended function in the one case and of the suppression of the morbid produce of the disease in the other bear a most striking analogy. Among the effects of suppressed leucorrhœa, which have been most frequently reported by authors, we may perhaps be permitted to enumerate the following: viz. dysuria; inflammation of the uterus; ulcerations of the uterus consequent upon such inflammation; hæmorrhoids; profuse perspiration of particular parts, as of the feet, and sometimes of the whole body; humid and pruriginous eruptions; deep-seated pains of the head, shoulders, or lower extremities, often erroneously referred to rheumatic, gouty, syphilitic, or other imputed morbid taints in the habit; miliary fevers, proximately perhaps the effect of profuse and foetid perspirations; catarrhal fevers; gastric fevers; visceral diseases and dropsies; acute and chronic inflammations of the intestines; diarrheas and dysenteries; diabetes; bronchial inflammations and phthisis; gout; neuralgic affections; hysteria and other diseases of the nervous system. The dangerous results do not always supervene immediately upon the suppression of leucorrhœal discharges. See cases in illustration in the 4th edition of the work, pp. 345 to 347 inclusive.

OF THE DIAGNOSTIC SYMPTOMS OF UTERINE AND VAGINAL CATARRHS.—Leucorrhœal discharges, as we have already seen, are properly morbid secretions from the glands, and transudations from the exhalant arteries, and possibly also in certain cases from the minutest veins of the mucous membrane of the uterus and the vagina. But the produce of these morbid secretions may obviously be confounded as well as complicated with discharges from ulcers, and from abscesses, and with residual serosities and putrid solutions of coagula consequent upon hæmorrhages. Leucorrhœal discharges may in most cases be distinguished from

the matter of a uterine ulcer by the histories respectively of the two diseases. Ulcers are usually preceded by inflammatory symptoms of a much more intense character than those of leucorrhea, and are followed by unequivocal symptoms of suppuration; such as alternations of distinct chills and great heat of parts or of the whole body; a dry arid skin; flushings of the face often preceded or followed by a deadly paleness; fever, with an increase of the febrile action towards evening, and sometimes succeeded by profuse colliquative perspirations; fixed and intense pain in the uterine region, extending in many cases to the labia pudendi, groins, and the upper parts of the thighs. The discharge is moreover very foetid, variously coloured, often of a brownish hue, and not unfrequently streaked with blood. Hippocrates notices especially the throbbing character of the pain of the hypogastrium, and the exquisite tenderness of the part upon the application of the hand. *Hip. de Morb. Muliebr. sentent. 9.* The taxis or still better the speculum must be employed to make out the diagnosis between an ulcer of the vagina and one occupying the neck of the uterus.

The diagnosis between discharges incident to uterine catarrhs and those furnished by abscesses from the womb, is to be deduced from the intensity and consecution of the symptoms of the latter malady, and from the obviously different characters of their respective discharges. The series of symptoms indicative of the formation of abscess are, a distinct rigour; great heat and pain in the hypogastrium for some days; afterwards an intensely throbbing pain more limited in its locality; gradual diminution of the pain and cessation of the throbbing; indistinct shiverings; and finally the establishment of the purulent discharge. The symptoms attendant on uterine catarrhs are less regular in their consecution, and for the most part essentially different in their type. On examination of the material of the discharges respectively, the subject produce of an abscess, it is well known, is found to be pus; whereas that from catarrh is essentially mucus. Poured into water the pus sinks into the bottom of the vessel, is easily divided and dissolves; whereas mucus treated in the same manner floats on the surface, and by being attempted to be divided is thrown into shreds of inseparable flocculent filaments. The matter of the discharge, in some of the more acute cases of leucorrhea, assumes very much the appearance of laudable pus; and it must be confessed that the diagnosis is occasionally



attended with extreme difficulty. A lady was the subject, for two or three years, of a yellow thickish discharge, which was constant and profuse in quantity from the vagina. The case was attended by some severe symptoms, and the discharge was identified with a purulent stillicidium from the left ovary, that organ being supposed to have formed, by ulceration, a direct communication with the cavity of the uterus. The patient died. On inspection of the body, the liver was found greatly enlarged and tuberculated; some of its lobulated encroachments extending as far as the left lumbar and iliac regions of the abdomen. The spleen was covered with a thickish coating of purulent matter. The intestines were closely matted together by the pressure which they had sustained from the enlarged liver, as well as glued together in many parts by adhesive inflammation of their surfaces. But on inspecting the contents of the pelvis it was observed THAT THE UTERUS WITH ALL ITS APPENDAGES, NOT EVEN EXCEPTING THE LEFT OVARY, was in a state of perfect soundness. Both the ovaries were healthy and pretty well supplied with vesiculæ Graaffianæ.

It has been often a great desideratum in the profession to establish a satisfactory DIAGNOSIS between the matter of gonorrhea, the known or suspected result of impure sexual intercourse, and the produce occasionally of some of the severer forms of leucorrhea. It has been supposed that the accession of an irritating discharge from the vagina in a case never before the subject of any discharge at all, supervening upon a sexual congress within the usual time and after the usual manner of a gonorrheal affection, could be no other than the actual result of infection from that source. But it is a well-known fact, that the mechanical irritation attendant upon the first conjugal embrace is sometimes followed by a leucorrheal secretion so abundant, so painful in its accompaniments, and in all respects so similar in its sensible properties to the matter of virulent gonorrhea, as not to be distinguishable from it. The author has known many married ladies, the wives of perfectly HEALTHY husbands, who were never subjects of leucorrhea before marriage, and who have never been free from it subsequently.

It has been a notion of some writers that gonorrhea alone is accompanied by extreme phlogosis of the surfaces forming the vaginal orifice, and especially by the symptom called ardor urinæ. Both those statements are unfounded in fact. De Graaff. de

Mulier. Organ. p. 140, supposes that we may distinguish fluor albus from venereal gonorrhea by the respective localities of their sources ; the former deriving its origin from the uterus, and the other being exclusively produced by a morbid secretion from the surfaces which form or are immediately within the genital sulcus ; as those of the external orifice of the vagina, of the external orifice of the urethra, of the clitoris, nymphæ, etc. In refutation of this opinion it need only be observed that the surfaces just enumerated, are liable to inflammatory affections not to be distinguished in their appearance from similar conditions of parts produced by gonorrheal infection, though certainly never exposed to the action of that virus, and often perfectly well known to be the results of other causes of irritation. Authors have sometimes attempted to discover the means of a diagnosis between the discharges incidental, respectively, to gonorrheal and leucorrheal inflammations of the mucous membranes of the genital surfaces, from supposed differences in their colour, odour, density, and quantity.

Baglivi. Prax. Medic. lib. ii. cap. 8, art. 3, propounds as a principle of diagnosis in these cases, the assumed fact, that the leucorrheal discharge ceases during menstruation and vice versa. The experiments of Sweidiaur and others, and the experience generally of the profession, and especially of accurate modern surgeons and pathologists, have abundantly proved the futility and unsatisfactoriness of all these distinctions.

Our PROGNOSIS of leucorrhea must be founded upon the several circumstances of its being simple or complicated ; of its being constitutional or the result of a local or specific cause of irritation ; of its being recent or long established ; and on the age and other circumstances of the patient. Uterine catarrhs when simple are seldom dangerous, and they are often supported for many years without serious inconvenience ; whereas when complicated by carunculous or other fungoid growths from the vagina, by uterine or vaginal polypi, by scirrhosities and other incurable indurations of the glands at the neck of the uterus, by a carcinomated state of any part of that organ, by aphthous or other ulcerations of its internal surface, or by prolapsion, procidentia, inversion, or any other malposition of it, they are more rebellious or fatal according to the degree of untractableness or danger attaching to the several complications. A constitutional affection of this kind may not be incompatible

with many enjoyments during life's passage, nor with a moderately long duration of it. The prognosis however even in this case is so far unfavourable, that being identified with a certain character of original organization, and also for the most part associated with feeble powers of digestion, it is seldom or never curable, nor even susceptible of much substantial and permanent relief. The same general remark applies to all cases of leucorrhæal profluvia derived from a hereditary predisposition to them. The appearance of a leucorrhæal defluxion from the genitals in consequence of the suppression of a habitual evacuation from other organs or surfaces, or when it occurs critically in acute diseases, may usually be considered as exceedingly favourable; inasmuch as it seldom fails to become a protection against results which might possibly be attended with more danger. It should be observed that when instituted vicariously, a fluor albus should not be hastily tampered with. In general however both it and the original disease might ultimately be expected to yield to judicious treatment. When the result of local irritation, the cause being usually of a temporary nature, the effect may be expected to cease as soon as the influence of that cause shall have permanently exhausted itself. When the consequence of child-bearing, the event will very much depend upon the constitutional character of the individual, upon the size of the child, on any difficulties or injuries incurred during the birth, and on the amount, if any, of reduction of tone of the organs concerned in the function. When leucorrhæa is the effect of derangement of the catamenia, the result will of course materially depend upon the issue of any treatment which may be adopted for the due establishment or restoration of the natural function. When the quantity of the discharge is moderate, it is of course less debilitating in its effects, and may be sustained with comparative impunity for a greater number of years. Recent cases of fluor albus are usually cured without much difficulty; whereas those of long standing are more rebellious and almost always incurable. The latter moreover, besides being the cause of habitually delicate health, are often accompanied by an obstinate indisposition to conception. Hippocrat. Aphorism. sect. iv. aph. 42. Cases of leucorrhæa in young subjects, other circumstances being equal, are more tractable; whereas when the malady presents itself as an accompaniment of old age, it is never curable.



**PATHOLOGICAL CONDITIONS OF THE UTERUS AND VAGINA.**—In acute cases of leucorrhea the vagina, from the inflamed and swollen state of its parietes, usually sustains some diminution of capacity; whereas in cases of long standing it perhaps always acquires a considerable accession of amplitude. Morgagni de Sedib. Morb. Addend. Epist. 67. In some cases it has been so much inflamed in different parts as to present upon post-mortem examinations the actual appearance of gangrene. Blatin, p. 259, ex Literis Johannis de Muralto. In one case recorded by Blasius, Observ. Medic. Obs. 5, it is stated that the anterior or urethral portion of its parietes had acquired the enormous thickness of two inches.

The presence of tumours of various kinds has already been noticed as occasional causes of vaginal leucorrhea. Pinel, Clinique interne de la Salpêtrière.

Ulcerations of all varieties of extent, from the size of pin-heads to that of the entire length of its parietes, have been quoted as examples of the causes and concomitants of morbid discharges from the vagina. Blatin, *Traité des Fleurs Blanches*, p. 254.

The neck of the uterus, in cases of morbid discharges from the genitals, in many cases no doubt not strictly and exclusively leucorrheal, have usually presented analogous states of disease to those of the vagina. The orifice of the uterus is found even in the simplest cases of uterine catarrh to be in a state of more than ordinary development. Its lips are also frequently felt to be unusually prominent and elongated. If inspected through a speculum they may sometimes be seen very much swollen, turgid with red blood, and the seat of varicose enlargement of their veins. These facts, ascertainable during life, have been amply confirmed by post-mortem examinations. Morgagni de Sedib. et Caus. Morb. Epist. 67.

The entire cavity of the womb including the passage through its neck has been found gorged with such varieties of mucosities as have been seen during life to form the usual varieties of leucorrheal discharges. Blatin, *Recueil d'Observations*, Obs. 30 et 31. The size of the uterus is generally something larger during the presence of fluor albus than when perfectly free from that cause of irritation.

By long continuance of the vascular turgescence incident to the presence of fluor albus, the minute and ultimate veins of the

cavity of the body of the uterus, as has been already observed of those of the neck, become the subject of varicose enlargements, Morgagn. de Sedib. et Caus. Morb. Epist. 47.

Sometimes the womb has been found diverted from its natural position within the pelvis. Blatin, Recueil d'Observations, Obs. 12. Within the cavity of the same organ we encounter tumours of different sizes, and of all possible varieties of structure, all no doubt calculated to excite its glands and its fine villous-tissued vessels into morbid action. Fred. Hoffman, System. Medicin. Ration. tom. iii. p. 160. Acta Natur. Curios. tom. i. Append. 72. et tom. x. Obs. 100. Morgagni de Sedib. et Caus. Morb. Epist. 47. art. 14 et 27. Protuberant glandular bodies of very small size, small excrescences of a warty character, and even simple roughness of the internal surface of the uterus, have been known to produce severe leucorrhœal discharges of many years' duration. Morgagni, Epist. 45. art. 21. Epist. 48. art. 38. Epist. 46. art. 16.

OF THE TREATMENT OF LEUCORRHEAL DISCHARGES.—Different varieties of morbid conditions of the organs concerned, productive severally of different discharges, must of course be expected to furnish different indications of treatment. The principal of such conditions are, inflammation of the uterus, inflammation of the same organ complicated with a state of great relaxation of its tissue; malpositions; and the diverse morbid affections already enumerated, calculated to generate or to complicate the malady. 2nd, Analogous affections of the mucous membrane of the vagina.

Inflammation is seldom carried to any considerable degree of intensity, excepting in cases of ACUTE uterine catarrh. The acute forms of the disease, especially when the inflammation is very severe, requires free bleeding: the application of leeches to the vulva; and preferably, if permitted, to the orifice of the uterus itself; fomentations assiduously applied to the abdomen; semicupia; diluent and diuretic drinks; diaphoretics, consisting of camphor mixture and liquor ammoniæ acetatis; strict repose in a horizontal position, and little or no food. In chronic inflammation of the uterus, the same means should be had recourse to, but with more moderation and circumspection. This form of the inflammatory action is apt to lapse into a state of atony exceedingly difficult to remedy. In cases of acute inflammation of the mucous tissue, we do not encounter a state of atony excepting

in the fourth and last stage referred to in a former part of this article ; whereas in some chronic cases the accompanying or subsequent relaxation is so considerable, as to demand the greatest attention of the medical attendant to repress and to subdue it. This part of the indication is to be attained by a timely suspension of all depleting and debilitating measures, by the use of tonics, and by the gradual and cautious adoption of such means as may seem calculated to improve the general health. Moderate exercise in the middle of the day, and in a dry open country, should be recommended as a regular and daily duty never if possible to be neglected. When an acute leucorrhœa shall have completely assumed the character of a chronic affection, local remedies are to be had recourse to without delay. These should consist in the first instance of mildly stimulating injections, such as infusions of gentian, oak-bark, the misletoe, nutgalls, or of the more common aromatic herbs, as of rosemary, hyssop, mint, etc., and afterwards of chemical astringent solutions, as those of sulphate of alum, sulphate of copper, sulphate of zinc, acetate of lead, nitrate of silver, etc. The principal circumstances of precaution to be attended to during the use of these and other topical remedies are, first, their suitableness to the stage and form of the disease ; but secondly and principally, that the functions of the bowels, kidneys, and skin, shall not be interrupted nor even allowed to languish during the administration of them.

Concurrently with the use of local astringents and tonics, the internal exhibition of balsamic and terebinthinate medicines, including some of the principal gum resins, should be made available immediately on the retirement of the acute symptoms : for although we do not know the mode of operation of these remarkable agents, the fact on that account is not less certain that they exert considerable influence on some of the functions of the urinary and genital passages.

Some authors have strongly recommended the use of cretaceous and absorbent medicines in cases of chronic leucorrhœa complicated with constitutional delicacy and cachexia ; and hence possibly in part the celebrity in those cases of the Bristol, Pyrmont, and Matlock waters. J. Storck, *Miscell. Medico-Phys. Wedel. Amœnitat. Mat. Medic. lib. ii. cap. 12* ; Gasp. Kolichen, *Acta Medic. Haffen. vol. i. obs. 83* ; Lanzon, *Miscell. Nat. Curios. decad. iii. an. 1, obs. 39*. When cretaceous substances



have been administered in expensive and medicated forms, various tonics, such as wine, bark, and chalybeates, have usually been prescribed in combination with them; and when ladies are sent the subjects of delicate health to watering-places of great public resort, the reader will doubtless feel no difficulty in ascribing at least a great part of the advantage usually derived from such visits to their accompanying influences, change of air, scene, society, regimen; and frequently of personal habits and self-government in their most extensive signification.

An adequate consideration of the treatment of fluor albus must have a constant reference to its causes, and, in short, to all the elements of its pathological history. If supposed to depend upon original delicacy of constitution, means should be suggested to strengthen, if possible, the constitution, and to improve the tone of the general actions of the system. These objects may often be in a great measure attained by recommending for the patient a suitable change of pursuits, society, and mode of living; a change of residence perhaps from a crowded population, or a humid and insalubrious atmosphere, into a dry open country; a less succulent, and perhaps a less nutrient and a harder, system of diet; more personal exercise, or if convenient, and deemed necessary, some form of laborious occupation judiciously apportioned and regulated.

Among the most frequent causes of leucorrhœa, there are some which may be especially denominated sexual. Such are derangements of the menstrual functions; divers unsalutary influences of the sexual passion on the constitution, whether from defective or excessive gratification of it, or whether depending on peculiar conformation of organs or on certain idiosyncrasies of functions; some local accompaniments and results of gestation; certain constitutional effects of the same function; effects of abortions on the genitals and on the general system; and, finally, certain occasional consequences of parturition and of the puerperal state.

Cases of fluor albus produced by derangements of the menstrual function may be expected to be cured by the establishment or restoration of the catamenia. The reader must, therefore, be here referred to the treatment of amenorrhœa and disordered menstruation generally, as submitted to his perusal in several preceding pages.

Amongst unsalutary influences of the sexual passion, one of the most important is that of disappointed or unprosperous love, which usually produces its morbid effects on the genital system reflectively, from certain depressing operations of the mind on the actions of the digestive organs. The assemblage of symptoms usually represented by the term chlorosis, and frequently accompanied by leucorrhea, are accordingly amongst the earliest consequences of these gastric disturbances. An adequate system of treatment for these unhappy and complicated results will, therefore, require to be directed by several different indications. The wounded heart clinging to its object, and scarcely to be alienated by neglect or even by repulsion, the mind diseased and desolate, oppressed and distracted by its own silent and solitary misery, is an object almost exclusively of moral management. Next to the anxious soothings of parental affection, or of intimate private friendship, the principal remedy for this part of the case will be found in the sedative influence of time, aided by the natural elasticity and reaction of an originally sound and vigorous understanding. Special circumstances may occasionally furnish opportunity for the medical attendant to become a party even to this branch of the treatment; but in general he will not be consulted until the moral affection shall have produced considerable physical disturbances. The physician's first cares, therefore, most frequently have for their object the treatment of the physical and properly medical part of the case, the re-adjustment and re-establishment of the unbalanced actions of the body. Among these he will probably recognise the disturbances of the gastric functions as the most prominent; and he will often encounter no little difficulty in the selection of his remedies. When the power of digestion is greatly impaired, nature usually reduces correspondingly her demand for food. In very many cases she likewise takes upon herself to dictate the choice of particular kinds and forms of aliment. The moderate quantity of food required, or proper to be taken on these occasions, should be palatable to the patient, nutritious, and easily digested. When an article of food combines these several properties, it is a matter of little importance what its name may be, or from what class of aliments it may have been obtained. As a general rule, weak stomachs should not be overburdened either with frequent supplies or large masses of fluid foods. Broths and soups

are rarely digested in such circumstances either soon or easily. Beef and mutton, in delicate slices from the middle of the joint, or in the form of chops or steaks, may always be recommended with safety, provided they are taken in moderate quantities and with relish. In the absence of appetite for butchers' meat, the more tender parts of poultry or game may sometimes be advantageously substituted; as may also some kinds of fish, as soles, smelts, whiting, trout, etc. All light and simple puddings are wholesome whenever they can be fancied, and soon digested. Vegetables should be sparingly used. The best of them perhaps is a well-cooked mealy potato. In cases of acute leucorrhœa accompanied by severe pains, by a sense of fulness and tension in the hypogastrium, and by an excited state of the heart and arteries, the patient will seldom require much food, which should then consist of the lightest puddings, the jellies of arrowroot or sago, milk thickened with oatmeal or flour, panada, etc. On the retirement of the acute symptoms, carminative stomachics and tonics may importantly contribute to restore the enfeebled powers of digestion to their natural and healthy balance. With this class of medicines may often be most advantageously combined moderate doses of rhubarb. Rhubarb, in various combinations, was considered so important a medicine by Hoffman in all cases of feeble digestive powers, that he never neglected an opportunity of strongly recommending its use. Fred. Hoffman. *Opera Omnia*, tom. iii. De Cachexia Uterina, cap. xvi. § 3. p. 351.

After subduing the phlogosis incident to the first stage of the constitutional disease, it will generally be both safe and proper to attempt also the subduction of the local affection, by means of stimulants and astringents. The actions of the hepatic system, very liable to be retarded by the depressing influence of the moral part of the disease, must be sustained by small doses more or less frequently exhibited of blue-pill, and in some cases, at more distant intervals, of Plummer's pill with the extracts of gentian and rhubarb.

A peculiar variety of gastrodynia, a distressingly painful aching of the stomach, is not unfrequently an accompaniment of suspended menstruation and leucorrhœa, when these latter symptoms are the effects or parts of the moral malady now describing. The author has observed with great satisfaction, that in a certain



proportion of cases the essential oil of peppermint is an almost absolute specific for that affection. He thinks he has never known it fail to relieve it, whilst for an uncertain length of time, sometimes for weeks, and occasionally for months, he has repeatedly known it to effect its entire removal. A combination of the tincture of rhubarb with carbonate of soda has also not unfrequently produced excellent effects in these cases. Most writers have recommended travelling and change of scene, and sometimes of country, in the same unhappy circumstances. Whatever of innocent amusements can be made available towards sustaining the drooping spirits, or to beguile the tedious hour and to divert the mind from its private misery, should be thought of by the patient's friends, and presented to her attention with all practicable frequency, but at the same time with the utmost address and discretion. A new engagement of the heart's affections may, under certain circumstances, be occasionally within the reach and management of intimate and considerate friends. The faded charms of beauty have sometimes been surprisingly restored by such kindly acts of affection and friendship. To be successful, however, they will often require to be most delicately performed; and to be permanently happy in their results, they should always be based on good sense, and on the soundest principles of good morals.

It is the opinion of some physiologists that women of strong passions have been sometimes known to become subjects of leucorrhœa attended with hysteria and other constitutional affections, for want of adequate exercise, or from the absence of all opportunity for the enjoyment of the sexual function. Of the absolute correctness of this opinion it is difficult to predicate with confidence; inasmuch as the symptoms thus attempted to be accounted for constantly present themselves under circumstances where the causes referred to cannot be supposed to exist.

Of the tendency of excessive indulgence in venery to produce some of the effects in question, and especially leucorrhœa, there is much less room to doubt. In either case, however, the remedies are to be derived more from moral than from medical sources. The medical and pharmaceutical remedies best suited to the cases here referred to, will be found to consist principally in occasional abstractions of blood, sometimes from the arm, but more frequently by leeches from the genitals, a prudent exhibition

of aperients, topical astringents, and sedatives, together with tepid and cold bathing, and the daily use of the bidet.

Leucorrhœa has sometimes been produced, as we have already seen, by the excitement of the first sexual congress. Cases of this kind, however, can seldom be expected to be reported to the medical attendant until after the lapse of several weeks subsequently to the commencement of the irritation. The remedy might have reference to the sexual conformation, or to some other attribute or circumstance appertaining to the husband. These points should be positively ascertained, before the wife is submitted to personal examination. The irritation here supposed is often the result of a more than ordinary contractedness of the orifice of the vagina. The difficulty then incident to the exercise of the sexual congress may be such as to excite the mucous glands, which enter very numerously into the constituent structure of that part, into a state of inflammatory irritation, in consequence of which they are thrown into morbidly excessive action; or in other words they become the source of a profuse leucorrhœal profluvium. Again, by reason of a more than ordinary brevity of the vagina, the glandular apparatus at the orifice of the uterus may become the seat and subject of much functional irritation in consequence of its exposure to inordinate pressure during the exercise of the coitus. The first of these cases must be treated by a frequent use of the warm hip-bath, by soothing fomentations to the genitals, by the occasional abstraction of blood, by leeches from the immediately adjoining surfaces, and by practising at least some abstinence as to the imputed means or cause of the irritation. In several obstinate cases of this description, which at different times have fallen within the cognizance of the author, he has observed that waxed sponge tents worn for an hour or two daily have been attended with excellent effects. In the other case referred to, the treatment must obviously consist in a prudent forbearance from a too forcible application of the cause, and must of necessity be entrusted to the good sense and good feeling of the husband. Denman's *Introduction to the Practice of Midwifery*, chap. iii. sect. 2.

All the organs more immediately concerned in leucorrhœal profluvia, although perfectly natural as to their conformation, may nevertheless become the sources of profuse discharges of that kind, in consequence of abuse of their functional attributes. Hence the constant liability of courtesans to all sorts of morbid

discharges from the genital passages. In the treatment of fluor albus of married ladies when presumed to depend upon this cause, much skilful management will be required on the part of the practitioner, first to detect the fact of such a case, and then to procure a strict observance of the prophylactic and remedial measures to be pursued. It is manifest that the husband must here also be made an accessory, and in some respects indeed a principal, to the treatment to be adopted. The husband in fact is generally most chargeable with the blame of excesses of this description; at all events the prophylactic part of the treatment must be entrusted to him alone. In the mean time a temporary separation may be advised as being more substantially calculated to ensure conformity to a restrictive precept such as we here suppose, than any oral or even written enunciation of it. The remedial measures to be had recourse to will of course depend on the extent of the evil supposed to have been induced. If the discharge is presumed to have existed for a long time, to have been very profuse and debilitating, and the patient is supposed in consequence to be reduced to a state of extreme delicacy as to her general health, it is obvious that our indication of treatment must include all the means that may seem calculated to impart tone to all the more important functions of the system. Next to the actions of the genital organs themselves, those of the chylopoietic organs will generally be found most embarrassed and deranged. These, therefore, should be made the objects of our earliest attention. For the first week or two, the profluvium should only be treated by the most soothing tepid injections or lotions, as the particular case may indicate, consisting of herbaceous infusions or decoctions, as those of marsh-mallows, poppy heads, etc. and afterwards of such as may be expected to prove more tonic and astringent. Without incurring the charge of much unnecessary repetition, the author cannot here go into a detail of the whole treatment of cases of leucorrhœa depending upon the particular cause now supposed, but which must be considered as identified with many others as to their effects upon the constitution.

Sexual profluvia of a simply leucorrhœal character are sometimes, and under certain circumstances, exceedingly difficult to be distinguished from gonorrhœal discharges; whereas, in all such cases, it is more or less important to establish the diagnosis, if practicable, on principles which might leave no possible doubt as



to their proper origin. The author is anxious to urge this point strongly on his reader's attention, inasmuch as he has, in the course of his practice, encountered several unquestionable examples of gonorrhea TREATED WITHOUT MERCURY, from which subsequently the system became tainted with the virus of constitutional syphilis. A case of this description is, indeed, at the present moment under his professional care. About three weeks ago Mrs. G. requested his advice for her infant, a puny-looking male child, six weeks old. The case was one of copper-coloured eruptions on the nates and genitals, and of large malignant ulcerations of the left foot, which extended to the heel and ankle of the same extremity. This child, when born, to use the language of its mother, "was a very fine baby," and perfectly free from every appearance of cutaneous disease. But it did not thrive; for instead of increasing in strength and size, it daily became less vigorous and less healthy in its appearance; although the mother could and did furnish it with an ample supply of good milk. Towards the end of the third week after its birth, the eruptions above described made their appearance somewhat suddenly. Of their proper nosological character there could not be the smallest room to doubt. The mother of course was not privy to the cause; nor, indeed, did she seem to have any suspicion of it. The author therefore immediately sought an interview with the father; to whom he made a full communication of his opinion as to the undoubted nature of the cause. That gentleman stated in reply, that he had been married about fifteen months, and that when he married he considered himself perfectly free from all possible taint of injury from any gaities with women; that indeed he never had at any period been the subject of chancres nor of any kind of venereal ulcers, nor of bubo; BUT THAT, ON MORE THAN ONE OCCASION, HE HAD BEEN AFFECTED WITH GONORRHEA, and that when he last had it, he had sustained very serious inconveniences from it. He concluded, however, his statement with a positive assurance, and he could be actuated by no rational motive to misrepresent the fact, that he had had no one symptom even of that complaint for upwards of two years before he married. The eruption on the infant has since yielded to the action of a third of a grain of calomel exhibited three times a day, and of five grains of blue pill given twice a day to the mother. The mother's mouth has been slightly affected, and the remedy in her case is being now suspended, again perhaps to be soon resumed;

but in that of the infant it has been given without intermission, and will probably be continued for two or three weeks longer, to avoid the possibility of a relapse. In the mean time the child is greatly improved both in health and looks. The father was recommended to apply to his surgeon, under whose care he is at present.

The leucorrhœa which presents itself as a frequent result and accompaniment of gestation, is for the most part a symptomatic affection, often purely local in its influence, and seldom protracted beyond the duration of its occasional cause. Pregnancy may be identified with a plethoric condition of the genital system.

During the earlier months of gestation, the uterus gradually increasing both in weight and volume, is apt to sink into a lower part of the pelvic cavity than it is usual for it to occupy during its unimpregnated state. A natural consequence of this descent must therefore be some amount of friction and pressure of that organ against the parietes of the vagina, and especially against those inferior portions of it which may be said to constitute the flooring of the pelvis. But the mucous apparatus of the vagina is a considerable constituent tissue of the inferior portion of the genital passage. It is accordingly the glandular part of the mucous membrane of that portion of the vagina which is especially the source of the leucorrhœal discharge which almost always attends the earlier months of pregnancy. At the period of quickening, the womb usually ascends from the cavity of the pelvis into that of the abdomen; wherefore at that stage of the gestation it is common for women to be much relieved of their fluor albus, as well as of other symptoms of local irritation, which from the influence of the mechanical cause just explained are seldom entirely absent during the earlier months. Again, during the latter months of gestation, the uterus, although elevated above the brim of the pelvis, undergoes so prodigious a development, and acquires such accession both of bulk and weight, the whole amount of its enlargement being indeed accessional to its ordinary condition at other times, that it can scarcely be expected it should not be productive of considerable inconvenience and disturbance to its immediately contiguous organs. Hence principally the teasing aches and pains which are referred to the back and loins, and to the parts about the brim of the pelvis generally; hence the frequent desire to void the contents of the bladder; and hence, no doubt, the profuse leucorrhœal profluvia,

which scarcely ever fail to attend the latter weeks and months of gestation. Moreover, it may be stated as a known fact, that the vagina sustains a considerable extension of its length during the more advanced stages of pregnancy; a circumstance which very probably may have some effect in quickening the action of its exhalant vessels and glands. To these indisputable facts let there be added the consideration, that the vaginal arteries are derived from the same great trunks from which are produced the important arteries which supply the uterus itself with blood. Now if one great system of branches from these common trunks is made to sustain an extraordinary development, which we know to be the case with the uterine arteries during gestation, it seems probable that its immediately adjoining branches, which are employed to supply blood to contiguous organs, cannot at the same time remain in their ordinary state of distension. By these modes of explanation therefore we readily account for the profuse leucorrhœal discharges to which most women are liable during the latter months of their gestation.

From such a view of the causes of the profluvium under consideration, the reader will doubtless see good reason to infer the comparative unprofitableness of any system of treatment for it. Some slight mitigation of the discharge will accordingly be all which the practitioner will usually find himself competent to accomplish. This limited relief of it will be occasionally obtained from the adoption of certain vigorous measures which may be found necessary for subduing other and more important symptoms. General bleeding may be mentioned as the principal of such measures. In cases of very painful hæmorrhoids we sometimes derive great advantage from the application of a good many leeches to the anus. A certain amount of relief is thus obtained to the over-distended vessels, not only of the rectum, but also of those of the neighbouring tissues. Under the same circumstances the tepid bath, the tepid hip-bath, the frequent use of the bidet, and injections of tepid water into the vagina, will often most materially serve to promote the patient's comfort. The bowels should be kept constantly open by mildly aperient medicines and enemata. A reclining or a horizontal position, by diminishing the amount of pressure which the parts about the brim of the pelvis would otherwise have to sustain from the gravid uterus, might in many cases be made available towards greatly reducing the discharge as to QUANTITY. To



effect its entire removal will be found almost always impracticable.

The ordinary consummation of pregnancy may generally be expected to operate as a final and efficacious remedy of the fluor albus incident to that condition. Such indeed it very frequently proves to be under a proper management of the patient during the puerperal state. In some unfortunate cases, however, a leucorrhœa, which shall for the first time present itself during pregnancy, is observed to remain for ever afterwards, subject perhaps to some variations as to quantity. In a certain inconsiderable proportion of cases, this result may be deemed unavoidable. The inordinate distension of the uterus during gestation, by reason of the presence of a morbid quantity of liquor amnii, or of a plurality of foetal contents, or of some monstrous or diseased enlargement of the whole or of any part of the produce of conception, may have the effect of injuring the tone of that organ so completely and permanently that it may never subsequently be able to recover it. Again, the head of the child is sometimes so large relatively to the dimensions of the brim of the pelvis, that in consequence of the slow progress of the first stage of a difficult labour thence resulting, the orifice and neck of the uterus are exposed to the risk of being very seriously compressed and contused. But the intelligent reader is well aware that these important portions of the uterus are in point of fact the seat of one of the most extensive systems of muciparo-glandular tissues that are to be met with in any part of the female genitals. Need we therefore be much surprised, if after enduring the extreme compression and even dangerous contusion to which such delicate tissues are thus exposed, that they should never afterwards recover a perfectly healthy condition, either of structure or of function? Add to the serious injuries thus sustained, the still greater evils which are sometimes inflicted by the rude hands of midwives or the instruments of other undexterous practitioners. But it is not the uterus only that is liable to injuries of this description from difficult and dangerous births; for so in point of fact are likewise all the parietes of the parturient passage. All cases of tedious labours are indeed more or less liable to be followed by a disposition to fluor albus. It has been observed, that unusually quick labours have not unfrequently been followed by this result. Quick labours suppose either very little resistance, or in other words a state of great relaxation of the soft parts, or

an unusually vigorous action on the part of the parturient powers. In the former case we may easily infer a previous predisponency on the part of the organs concerned to diseased action of their glandular tissues upon the application of a slight cause; and in the latter, such powerful action of the expellent agents as might be supposed competent under any circumstances to overstrain the constituent tissues of the genital passages.

But these are not the only causes of leucorrhœal discharges consequent upon parturition. We must add those of tedious recoveries during the puerperal state, by whatever causes produced. Suppose here the almost endless catalogue of errors and acts of indiscretion and mismanagement which are committed in the puerperal chamber, as also the influences of the important diseases, both local and constitutional, which women have to sustain during that eventful period, and our list of causes of leucorrhœa imputable to the EFFECTS OF PARTURITION AND ITS IMMEDIATE CONSEQUENCES will become a very numerous one indeed. Hence the fact that married women having families are much more frequently the subjects of fluor albus than single women of any age; and hence also the equally important fact that fluor albus is more frequently the result of pregnancy and its consequences than of all other causes put together. Of the correctness of this latter statement the author entertains not the smallest doubt.

When incurable injuries of structure, or even of function, are inflicted upon the organs which are the sources of the morbid profluvia here supposed, it is manifest that the effects must also prove irremediable. Hence the comparatively small number of women, after having sustained serious injuries of this kind, who ever perfectly recover from the effects of them. Hence consequently very strikingly the importance of an efficient system of prophylactic treatment.

Abortions are productive of fluor albus, partly in consequence of the losses of blood which are sustained on such occasions, and partly in consequence of the tediousness of recoveries from them. In some cases of premature births, portions of the ovum are retained; and when so retained at early periods of gestation, they are only removable by the expellent action of the uterus itself. Hence the retention may be protracted for many weeks. During the entire duration of such retentions it is obvious that much uterine irritation may be produced, accompanied by a pro-

fuse putrid discharge. In many cases of this description a permanent profluvium is thus established. As long as any of the remains of the placenta or other parts of the ovum are left in the uterus to be reduced by the process of elimination here supposed, the discharge will continue of a darkish brown colour, and very offensive as to its character. The elimination having been completed, the discharge gradually assumes a lighter colour, so as eventually to present the appearance and to possess the other qualities of a common *fluor albus*. In a certain proportion of cases, the patient subsequently to this result is restored to perfect health, and ceases to be the subject of any profluvium at all. In others, however, especially such as are protracted to an extraordinary duration, the uterus never after completely recovers its tone; and the patient is left to sustain a protracted and incurable infirmity till the usual period of cessation of the menses, if not for the remainder of her life. To avoid as much as possible this unhappy result, the putrid portions of placenta, known or supposed to be retained, should be well syringed DAILY with a powerful instrument; which in all probability will have the effect of greatly hastening their removal, and enable the uterus sooner and more effectually to recover its tone. In other respects the leucorrhœa consequent upon the action of this cause must be treated on ordinary principles.

Before we conclude the present article, the author thinks that it may serve a useful purpose to make a few practical remarks on the pretensions of two or three of the principal remedies for leucorrhœa, which have been most strongly recommended by practical writers. At the head of such list may perhaps be placed the celebrated PILLS OF STAHL, which about a century ago made all Germany, as well as other parts of Europe, resound with their praises. As many of the component parts of these famous pills continue to be prescribed for disordered menstruation by the practitioners of the present day, the following original formula may not be unacceptable to the reader:

R. Extracti cardui benedicti et fumarie, Gummi ammoniacæ in aceto scillitico soluti aa ʒi. Myrrhæ optimæ, Aloës succotrini aa ʒi. Gummi hederæ ʒss. ad ʒij. Croci pulverisati gr. xv. Misce ut fiat massa pilularum gr. iv.—v. singulariter continentium.

Of these pills fifteen grains were usually given for a dose. Of their presumed efficacy in the treatment of *fluor albus*, their original prescriber speaks in the following strong terms: "If



I have at any time observed an effect truly deserving to be spoken of in the strongest terms of satisfaction, from the use of any medicine whatever, it certainly has been from the use of these pills in cases of leucorrhœa." Colleg. Casuale Mag. obs. 19 et 68.

In cases of leucorrhœa, accompanied by much cachexia and a dyspeptic state of the digestive organs, the MINERAL ACIDS have been represented as possessing considerable remedial power. The sulphuric acid, indeed, was strongly recommended in fluor albus, by R. Fonseca, upwards of two centuries ago. His formula consisted of from twelve to fifteen drops of sulphuric acid, diluted in four pounds of rose-water. Of this, an ounce was ordered to be taken every morning, sweetened with syrup. Consilia Medic. tom. i. consult. 21. Weikard also exhibited sulphuric acid in cases of leucorrhœa and chlorosis with similar success: Obs. Medic. p. 108, cas. 1, 2. Amongst the practitioners of this country sulphuric acid is not regarded as possessing any considerable restringent powers over the morbid secretions of the female genitals, and it is probable that it owes any efficacy which it may possess in this respect to its tonic effects on the stomach, or generally on the constitution.

Some French writers have strongly recommended the use of the BUSH-BASIL, *ocymum basilicum silvestre*, as a powerful remedy for the morbid discharges of the sex. "A woman, aged twenty-four, had for four years been troubled with a profuse leucorrhœa, which had supervened on a derangement of the catamenia. The fluor albus had been so profuse that she was often obliged to change her linen in the course of the day. The discharge was of a greenish hue, inodorous, and of a purulent consistence. After the use of diluents, aperients, tonics, and ultimately of astringents, which were prescribed by M. Bajon, with little or no effect, the patient determined to spend some days at the house of Captain du Chassy, who had a great reputation for his knowledge of country medicines. There she was successfully treated, and in a few weeks cured, by the expressed juice of the bush-basil. The efficacy of the *ocymum* is probably to be attributed to the stimulant influence of its essential oil, which is slightly bitter and aromatic, its fragrance being similar to that of the oil of lemons, on the functions of the digestive organs." See a communication on this subject by M. Bajon, *Journal de Médecine*, tom. xxxix.

The powdered leaves of the *UVA URSI*, bear's whortle-berry, are another vegetable product which has sometimes been exhibited in more than one variety of sexual profluvia. It has indeed been often administered even by English practitioners as a remedy for diseases of the urinary passages. Its successful use in these cases has led to its administration in analogous affections of the genital passages, and the author has had several opportunities of observing that the powder of the leaves of *uva ursi*, administered in doses of from half a dram to a dram two or three times a day, has had the effect of greatly reducing the quantity of leucorrhœal discharges. For illustration of which see *Princip. and Pract. of Obst. Med.* vol. i. p. 369.

The *CICUTA*, *conium maculatum*, furnishes an example of another article in the *materia medica*, which has attained considerable celebrity for its efficacy in cases of female profluvia. This powerful narcotic was especially introduced to the notice of modern practitioners by the Baron Storck, of Vienna, who published, in 1769, an interesting and eloquent tract professedly written to recommend its use in many very intractable diseases. Amongst others he recommended it strongly in cases of morbid profluvia from the female genitals. Storck, it is now pretty generally understood, was a great theorist, and it has been somewhat plausibly supposed that he could exert a considerable power of management over his facts in order to make them square with his theoretical principles. Accordingly his descriptions of the remarkable results which he professed to have obtained from the use of the *cicuta*, especially in cases of scirrhus and carcinomatous diseases, have generally had the credit in this country of being exceedingly overcharged. In the 4th edition of the work some cases have been quoted from that author illustrative of its efficacy, pp. 371 et seq.

From some remarks which have been made in a preceding part of the present work on the efficacy of *MERCURIAL MEDICINES* as remedies for some forms of disordered menstruation, the reader will not be surprised that the same class of medicines should be expected to furnish an equally powerful agent for the subduction of other forms of morbid action of the same important organs, and the author has for many years been in the habit of exhibiting mercurial preparations under certain restrictions as a remedy for some of the most important varieties of *fluor albus*. He thinks he can speak with great confidence of the utility of this

practice, 1st, in cases of leucorrhea occasioned or accompanied by obstructions of the catamenial function; 2d, in cases, from whatever cause, complicated with chronic embarrassments of the chylopoietic functions; 3d, in those of gross and plethoric subjects, addicted at once to habits of indolence and to excessive personal indulgences; 4th, in cases accompanied by an acute inflammatory state, and by ulcerations of the genital surfaces; and lastly, and not unfrequently, in cases which he has found to resist the more common and even all other remedies. In combination with the internal administration of this great remedy, he has often derived the greatest advantage from the use of the black wash as an injection into the vagina. To effect the important changes required from the use of mercury in obstinate cases of fluor albus, it is necessary it should be exhibited in sufficient quantities to produce a perceptible affection of the gums, together with a moderate pyalism.

OF THE USE OF CANTHARIDES AS A REMEDY FOR FLUOR ALBUS.—For the introduction of cantharides as a remedy for leucorrhea and other diseased states of the female genitals, we are principally indebted to the late Dr. John Roberton of Edinburgh. Since that gentleman published his “*Practical Treatise on the Powers of Cantharides when used internally*,” in 1806, the author has had numerous opportunities of satisfying himself of the general correctness of his facts, and even of extending the application of his remedy beyond the precise limits of its administration as first proposed by him. The cases of leucorrhea best adapted for the use of cantharides are those of a chronic character, and such as have originated or become complicated with disordered states of the menstrual function. Dr. J. Roberton, in the work just alluded to, published ten very interesting cases, selected from amongst the results of his own practice, and from those of two or three of his professional friends, in illustration of the use of cantharides in fluor albus. See *Princip. and Pract. of Obstetric Medicine*, 4to edit. p. 379.

From the perusal of Dr. Roberton's cases, and from the results of his own experience of the same remedy in many similar cases, the author feels himself justified in submitting to the consideration of the less experienced part of his readers the following practical inferences:—1. Preparations of cantharides have an undoubted remedial power, proving eventually perfectly curative of many varieties of leucorrheal profluvia. 2. They sometimes



exert their remedial influence without occasioning strangury or any other visceral disturbances. In general, however, they are chargeable with producing those inconveniences to a very great degree. The author has met with repeated instances of timid women who never could be induced to resume the use of the remedy after having once experienced the intolerable sufferings occasioned by it. 3. In most cases the pains thus produced are of very temporary duration, and admit in the mean time of being greatly mitigated by the free use of emulsions and mucilaginous drinks, by the assiduous application of fomentations to the hypogastrium and external genitals, and by the exhibition once or twice repeated of opiate enemata. 4. The most convenient form of the remedy is that of the tincture, and best mode of measuring it into doses, is by drops. The quantity usually prescribed by the author during the first few days of its exhibition is twenty drops in a demulcent draught three or four times a day. He has then gradually increased the dose to thirty and forty, and in some few cases to fifty drops, until it has occasioned a slight tingling and irritation of the parts within and in the neighbourhood of the pelvis. Its exhibition has then been temporarily suspended, or the quantity exhibited has been greatly reduced. 5. In a small proportion of cases the disease has yielded to the action of the remedy in the course of five or six weeks; in the majority however the cure has not been accomplished in less time than in the same number of months. In a few it has exceeded a twelvemonth. Taking the average of Dr. Roberton's ten cases, we find the time occupied by the treatment to have been about four months and a half. 6. It is not proposed in this article to represent cantharides as an unfailing remedy in all cases of female profluvia; it being well known to the reader that many of them depend upon incurable diseases of structure. Amongst the most obstinate cases not presumed to be thus accompanied are such as are found complicated with hysteria. Even these, however, have often eventually yielded to the action of cantharides. 7. In general the recovery has been rapid or tedious as the malady has been of shorter or longer duration before the commencement of the treatment. 8. In cases much complicated with depression of spirits and other nervous accompaniments, supposed to depend on a cachectic state of the general health, without any ascertainable disease of structure, the author would strongly recommend a trial of the treatment by cantharides to

be made in preference, AT LEAST IN THE FIRST INSTANCE, to the exhibition of mercury. 9. "It is a valuable fact, that not only the general symptoms of leucorrhœa are removed, but that in a great number of cases, the tone and functions of the uterine system are greatly restored by the use of cantharides." 10. The administration of cantharides is as safe during menstruation as at other times.

The best local applications to be used as injections into the vagina, are solutions of acetate of lead and sulphate of alum; solutions of the sulphates of zinc and alum in combination, as recommended by Dr. Addison; a solution of nitrate of silver in the proportion of from two to eight grains of the salt to an ounce of water; and in all cases known to be complicated with an ulcerated state of the internal genitals, the black wash. The most important treatises, cases, and comments which are extant on the subject of female profluvia may be found in the following list of references:—

Boneti. Sepulcreti, lib. iii. serm. 31. observ. 6. Allen. Dissert. de fluore albo benigno. Jenæ, 1739. Juncker. Dissert. de fluore albo titulo et ortu benigno, etc. Halæ, 1752. Morgagni. De sedib. et caus. morb. epist. xlvii. art. 12, 14, 16, 17, 18, 19, 27. Trnka de Krzowiz. Hist. Leucorrhœæ. Vindobon. 1781. Zimmermann. Dissert. de fluore alb. Goetting. 1788. Blatin. des fleurs blanches, Paris 1810. Charleton. Inquisit. medico-physic. de caus. catamenior. et uteri rheumatism. Doussin-Dubreuil. Traité des glaires et de la gonorrhée bénigne. Raulin. Traité des fleurs blanches. Pineau. De notis virginitatis. Probl. 3. Cockson. Comment. Medic. No. iv. p. 88. Miscellan. Nat. Curios. cap. 9. et 10. Append. observ. 27. Hebd. 8. Musitan. De morb. muliebr. lib. ii. et iii. Fernel. et Roderic. a Castro. Mercat. De communib. mulier. affectib. cap. 15. Plater, De aquosis excretis, lib. ii. cap. 7. Fred. Hoffmann. De cachexia uteri. Böhmer. Observat. anatom. in utero humano. Dominic. Panarol. Observat. Medicin. observ. 13. Forest. De morb. muliebr. lib. xxviii. observ. 20. Baillou, lib. i. consult. 56. Sylvius de la Bõe. Prax. Medic. lib. iii. cap. 4. Mahon. Mémoires de la Société Médic. d'Emulat. tom. iii. Ramel. Journ. de Med. tom. lxiv. Pison. De morb. Brazil. cap. xvii. Stahl. Colleg. Casual. Magn. p. 695. Swediaur on Syphilis. Blennorrhagia in women, vol. i. p. 183. 191. Pomme. Traité des affect. vaporeuse, p. 425. R. a Fonseca. Consult. Medic. tom. i. con-

sult. 21. *Medic. and Surgic. Journal*, Edinb. vol. vii. p. 176. *Journ. de Médecine*, etc. vol. xix. p. 260. vol. xxxiv. p. 347. *Recueil Périodique*, vol. xiv. p. 77. *Journal Général de Méd.* etc. tom. xxxi. p. 378. *Mémoires de la Soc. Méd. d'Emulation*, tom. ii. p. 1. *Transactions of Coll. of Physicians*, London, vol. v. p. 23. *Ephem. Germanic.* Decad. i. an. 3. observ. 25. Dec. ii. an. 6. p. 281. Dec. ii. an. 7. p. 170. Dec. iii. an. 2. p. 129. Dec. iii. an. 5 et 6. p. 52. *Acta Medica. Th. Barth.* vol. i. p. 167. *Duncan's Medic. Comment.* vol. vii. p. 364.

OF THE IRRITABLE UTERUS.—HYSTERALGIA is a painful affection of the uterus, supposed to exist independently of any actual inflammation or other disorganisation of its tissue. The descriptive epithet here assumed to represent the assemblage of symptoms about to be enumerated as constituent attributes of the disease, was first given to them by the late Dr. Gooch. Before the publication of his essay, they were usually classed under the heads of painful menstruation, uterine irritation, or of chronic inflammation, according to their supposed functional complications, and to their effects upon the circulation and upon the general health, and possibly also according to the opinions of practitioners in given cases, of their identity with or ultimate tendency to produce disorganisation of the uterine tissues. To do justice to the pretensions of Dr. Gooch's essay in its attempt to furnish a new view of this disease, as consisting exclusively in a functionally morbid condition of the uterus, the author feels it his duty to avail himself of that writer's own graphic and spirited description.

"The disease which I have ventured to call the irritable uterus, is a painful and tender state of this organ, neither attended by nor tending to produce change in its structure. It is now between fifteen and twenty years since I began to notice this disease; and since then I have seen several cases every year. At first it puzzled me much: I had not seen it described in books. I took it for chronic inflammation, which would end in disorganisation, probably of a malignant kind; but experience, while it taught me that it was a very intractable disease, taught me also that it was not a disorganising one. I became familiar with its obstinacy, and less apprehensive about its result, for I know cases which have lasted upwards of ten years, in which the structure of the uterus is as unaltered now as it was in the beginning of the disease, as far at least as can be determined by examination during life. Although I find it



still an intractable disease, and wish I had a shorter and surer mode of cure to communicate, yet I think it worth describing, that practitioners may recognise it when they meet with it; that they may know what to expect in obstinacy, and what they need not apprehend in the result." . . . "A patient who is suffering from the irritable uterus complains of pain in the lowest part of the abdomen, along the brim of the pelvis, and often also in the loins. The pain is worse when she is up and taking exercise, and less when she is at rest in the horizontal posture. In this respect it resembles prolapsus uteri; but there is this difference, that in the latter, if the patient lies down, she soon becomes quite easy; but in the complaint of which I am speaking, the recumbent posture, although it diminishes, does not remove the pain. It is always present in some degree, and severe paroxysms often occur, although the patient shall have been recumbent for a long time. If the uterus is examined, it is found to be exquisitely tender; the finger can be introduced into the vagina, and pressed against its sides without causing uneasiness; but as soon as it reaches and is pressed against the uterus, it gives exquisite pain. This tenderness, however, varies at different times according to the degree of pain which shall have been latterly experienced. The neck and body of the uterus feel slightly swollen; but this condition also exists in different degrees, sometimes sufficiently manifest, sometimes scarcely or not at all perceptible. Excepting, however, this tenderness, and occasionally this swelling, or rather tension, the uterus feels perfectly natural in structure: there is no evidence of scirrhus in the neck; the orifice is not mis-shapen, its edges are not indurated. The patient finding her pain greatly increased by rising and walking, soon learns to relieve herself by lying on the sofa, and at length spends nearly her whole time there. Notwithstanding this precaution, there is always a considerable degree of uneasiness; but this frequently increases to severe pain. These paroxysms generally come on either a few days before menstruation, or (as is the case in many instances) a few days afterwards. If the paroxysm is properly treated, it subsides in a few days to the ordinary and more moderate uneasiness. Whilst this uneasiness is felt in the substance of the uterus, the general circulation is but little disturbed. The pulse is soft, and not much quicker than natural; but it is easily quickened by the slightest emotion. In a few instances, however, there has been a greater

and more permanent excitement of the general circulation: the degree in which the health has been reduced has been different in different cases. A patient who was originally delicate, who has suffered long, and has used much depleting treatment, has been, as might reasonably be expected, the most reduced. She has grown thin, pale, weak, and nervous: menstruation often continues regular, but sometimes diminishes or ceases altogether. The functions of the stomach and bowels are not more interrupted than might be expected from the loss of air and exercise. The appetite is not good, and the bowels require aperients; yet nothing more surely occasions a paroxysm of pain than an active purgative. Such are the leading symptoms of this distressing complaint. To embody them in one view, let the reader fancy to himself a young or middle-aged woman, somewhat reduced in health and flesh, almost living on her sofa for months, or even years, from a constant pain in the uterus, which renders her unable to sit up and take exercise; the uterus on examination unchanged in structure, but exquisitely tender; even in the recumbent posture always in pain, but subject to great aggravations more or less frequently."

The causes to which this disease has been attributed, and after the application of which it has occurred, are generally considerable bodily exertions, at times when the uterus is in a susceptible state. "In one patient," observes Dr. Gooch, "it came on after an enormous walk during a menstrual period; in another, it was occasioned by the patient's going shooting with her husband not many days after an abortion; in a third, it came on after standing for several hours many successive nights at concerts and parties; in a fourth, it originated in a journey in a rough carriage over the paved roads of France; in a fifth, it was attributed either to cold or to an astringent lotion, by which a profuse lochial discharge was suddenly stopped, followed by intense pain in the uterus; in a sixth, it occurred soon after, and apparently in consequence of, matrimony. Although, however, the disease followed, and was apparently excited by these several causes of irritation, yet the patients had previously manifested signs of predisposition to it: they were all sensitive in body and mind: many of them had been previously subject to the ordinary form of painful menstruation. The disease seemed to consist in a state of the uterus similar to that of painful menstruation, only permanent instead of occasional.

“ Long-continued pain in an organ so liable to malignant diseases as the uterus is, invariably leads to the apprehension of disease of structure, to ascertain which repeated examinations generally take place ; but nothing is discovered excepting exquisite tenderness and slight swelling or rather tension. THE DISEASE DOES NOT TERMINATE in change of structure. The fact also that many of these cases, after having lasted for years, end in complete recovery, is a sufficient proof that it is a disease only of function. Few such diseases, however, yield so slowly to remedies. Even in those which end in complete recovery, there are often long intervals in which the progress towards amendment is most unsatisfactory and dispiriting.” After some further descriptive accounts of symptoms essential to the malady, the ingenious writer pauses and asks, “ What is the nature of the disease ? ” “ It is not,” he answers, “ acute inflammation, for that would run a far shorter course, and end in certain known consequences. It is not chronic inflammation, for that is a disorganising process, and slowly but surely alters the structure of the organ in which it goes on. Both in chronic inflammation and in the disease which I am describing, there is a morbid state of the nerves, indicated by pain, and sometimes at least a morbid state of the blood-vessels, indicated by their fulness ; but the substances effused by chronic inflammation show that in this there is something additional in the actions, and consequently in the state of fulness of the vessels. The disease which I am describing resembles a state which other organs are subject to, and which in them is denominated irritation.” This point is illustrated by references to a description of an irritable tumour of the breast by Sir Astley Cooper, and to a similar state of the joints as described by Mr. Brodie. “ These painful states of the breast and of the joints appear to be similar to that which I have been describing in the uterus, similar in the kinds of constitution which they attack ; similar in pain ; in exquisite tenderness ; in resemblance to the commencement of organic disease, and in proving ultimately to be only diseases of function.”

This plausible theory of an exquisitely painful disease, without the co-existence of inflammatory action of the affected organ, must at best, in the present state of our knowledge, be considered doubtful as to its correctness. It is not even certain that we are yet acquainted with all the possible forms of inflammation, so as to be competent to assert broadly and emphatically that this or



that variety of inflammation should have a natural and necessary tendency to end in disorganisation of structure. It is not easy to conceive of certain forms of rheumatologic affections, for example, such as lumbago and sciatica, without connecting with them the idea of an inflammatory condition of the tissues principally concerned; and yet on that account, who ever supposes that such inflammatory actions have a natural and necessary tendency to end in malignant disorganisation of structure? If muscular fibres be a constituent tissue of the uterus, why might not such fibres become the subject of a painful inflammatory affection, a truly rheumatologic affection, without being followed, any more than in the other case, by a malignant disorganisation of structure? It is well known that the uterus is not unfrequently the subject of very painful states, occasioned exclusively by functional causes, as we see constantly exemplified in cases of disordered menstruation, leucorrhœa, etc.; but does it necessarily follow that such morbid conditions are essentially independent of all inflammatory action? Or rather, is it not demonstrable that of some of them, at all events, inflammatory action is an essential attribute? And yet we find that such painful states, such demonstrably inflammatory affections, may be sustained for many years without producing malignant disorganisation of structure. The limits subsisting between the phenomena respectively of irritation and inflammation are not yet established with sufficient precision to enable us to determine with perfect confidence under which of these heads some doubtful forms of disease should be classed. Many diseases, loosely attributed to irritation alone, are often characterised by symptoms which a more accurate diagnosis would enable us at once to ascribe to actual inflammation. In the description of the irritable uterus as above quoted, we encounter several symptoms which are known to be constant accompaniments of inflammatory action. All the occasional causes of the disease, as enumerated by Dr. Gooch, as well as the greater number of its essential symptoms, would seem to lead to the supposition of a proximate state of parts, if not actually inflammatory, at least one of no inconsiderable vascular congestion; for in addition to a morbid state of the nerves of the affected organ, which is not disputed, there is also unquestionably a morbid over-distension of its blood-vessels during the presence of this disease: and this is, after all, the point of greatest importance practically to attend to, inasmuch as it bears immediately on

the principal feature of the treatment to be adopted. The designation given by Dr. Gooch of "the irritable uterus" to the distressing malady which he has here very admirably described, is therefore so far objectionable, as it leaves out of view one of its original, and perhaps its very principal constituent, viz. A PAINFUL OVER-PLENITUDE OF A PART AT LEAST OF THE INTERNAL ILIAC AND PUDIC SYSTEMS OF BLOOD-VESSELS. Such a condition of the blood-vessels in question is more or less an obvious result of the occasional causes by which the disease is represented as being most frequently produced. It is promoted and exasperated by whatever exertions or other causes we can suppose calculated to increase the over-distension of the uterine vessels. The author recollects the case of a painful affection of the right foot, which was incurred by a gentleman some eighteen years ago by over-exertion in walking. At first the pain was considerable, and greatly interfered with the gentleman's pursuits; which required much personal activity. It was subject, like that of the irritable uterus, to occasional abatement, according to the degree of rest which could be afforded to the affected limb, and to more or less exacerbation, according to its exposure, which indeed was unavoidable, to more or less of walking exercise. It was, however, at no time so severe as to render walking totally impracticable. For this reason the case was almost entirely neglected in the beginning. It consequently became a chronic affection, which, although it gradually abated of its original violence, has never altogether ceased to occasion inconvenience. Now the reader will easily recognise something of analogy between the occasional causes respectively of the irritable uterus and of the lamed foot. If the painful effects be not of a nature to be identified with a state of inflammation in the one case, it would not of course be improper to dispute its existence in the other. On the other hand, an over-extension of tissue in the one case might be expected to produce a similar result as to proximate effect to what is known to take place in the other. In the foot case a state of exhausted power was followed successively by an over-extension of fibres and a slow sub-acute inflammation of the injured tissues. Of the fact of the latter result the author has reason to be quite certain. But why admit such results in one case, and deny or totally overlook them in the other? Of the foot case the proper treatment undoubtedly would have been the application of a suitable number of leeches to the part, and the

immersion of it for an hour or two afterwards in hot water, or the assiduous application for an equal length of time of hot fomentations to the surface, followed up by a repetition of the same practice on the next, or on an early day, subsequently ; giving also to the limb the benefit of two or three weeks' most perfect rest. But it may be very well asked, whether the idea of exclusive irritation could be supposed so directly to lead to the proper practice in such a case, as that of inflammation, or of that even of congestion of the vessels of the part consequent upon the application of the previous injury. The author thinks not. For the same reason, he therefore thinks that the new designation of Dr. Gooch, as applied to the morbid condition of the uterus, which in many respects he has most faithfully described, may have the effect of leading practitioners to an inert and procrastinating practice. In the case of "THE IRRITABLE UTERUS," there is a period of recency and comparative acuteness of symptoms as certainly as there is in those of the irritable tumour of the breast, and of painful affections of knee and ankle-joints from over-extension of their ligaments ; and there is little doubt but early and efficient vascular depletion would be quite as beneficial in all cases of the former, as they would probably prove in either of those of the latter. But would the hypothesis of a mere irritableness of the part in any one of these cases directly lead to such a practice ? The author thinks not. He accordingly finds local bleeding placed by Dr. Gooch under his second head of remedial means ; whereas the supposition of an over-fulness of the vascular system of the affected organ would naturally point to the relief of such a state AS A FIRST MEASURE. But if the disease be one of irritation and not of inflammation, nor of any condition of the parts allied to that of inflammation, why bleed at all ? Because probably the utility of the practice had been fully ascertained by experience before the theory of the irritable uterus had presented itself to the mind of its propounder.

From the drift of the above observations, the reader will easily infer that the author considers early vascular depletion as forming the very first item of efficient practice for the subduction of the disease under consideration. Dr. Gooch mentions the case of a lady a subject of this malady, " who was bled from the arm four times in one week." This reference forms a part of the descriptive history of a case which had been much mismanaged before it came within the cognizance of the late lamented essayist.



But it proves nothing beyond the fact of a most preposterous abuse of a most important remedy of treatment. The author, after many years' experience in the management of this disease, can scarcely bring his mind to entertain the idea of the necessity of general bleeding in any ordinary case of it. At all events, he has never yet seen a case of it in which he has considered general bleeding especially indicated. The complaint is essentially a local one, and by the method of local depletion more than once adverted to in the course of the present work, viz. by the direct application of leeches to the orifice of the uterus, the turgescient condition of the vessels of that organ cannot fail to be very speedily reduced. It is, however, much to be regretted, that the earliest opportunity for thus subduing the phlogosed condition of the uterus is seldom afforded us; the greater number of our patients choosing rather to await the events of time, than on the first onset of a malady involving possibly more interest and more considerations of delicacy than one, to apply without delay for competent medical advice. Although in consequence of procrastination it may often be put out of our power to cut short the disease, we shall nevertheless seldom find ourselves too late to be able to effect much good by a direct abstraction of blood judiciously repeated from the uterus itself. When that organ is intensely charged with blood, which may be ascertained by its being more than usually painful and swollen, and still more certainly by the aid of the speculum, four middle-sized leeches applied to its orifice will generally ensure the abstraction of about eight or ten ounces of blood from it in the course of about two hours' time. The operation is so far from being attended with pain to the patient, that she is seldom conscious even of the mere contact of the leeches. These abstractions of blood will require to be repeated from time to time, the quantities to be determined according to circumstances.

Another indication in the treatment of the irritable uterus, scarcely less important in reference to the hoped-for issue than the abstraction of blood in the manner here recommended, will be found in the almost uniform observance of a horizontal position of the body. If these two great measures could be made available at the very commencement of a case of this kind, there would appear to be no good reason why the irritable uterus should not be speedily and certainly cured, as well as any other inflammatory affections of particular parts of the body. In cases

of painful states of joints, for example, consequent upon over-extension of their ligamentous tissues, it is well known what great restrictions are imposed upon patients by all skilful surgeons in respect to their subsequent position and movements. In the same manner, and for a similar reason, should the subject of uterine irritation confine herself to a posture which shall least promote a congested state of the blood-vessels of the affected organ. In a case of this description, it will be of very little use to abstract blood from the uterus one day, and on the very next to put it in a situation to be as tensely charged as it was before.

After the disease shall have become chronic, it will be in vain to expect an early recovery; which indeed could then be obtained only by more than ordinary perseverance in the use of the means. There is, however, one point of practice, in reference to this form of the disease, to which the reader will do well to pay particular attention. The subjects of "the irritable uterus" are not always unsusceptible of impregnation. On the event of conception taking place during a period of remission of the more urgent symptoms of the disease, the medical attendant should more than ever, and especially during the earlier months of gestation, insist upon the strictest conformity to his precepts in respect to the observance exclusively of the horizontal position. The action of gestation introduces a great change into the uterine system. During the last four months it places the uterus in a situation to be in a great measure secure from the attacks, if not altogether beyond the reach of some of the most influential occasional causes, of the disease. On the completion of the process of parturition, the patient may indeed be said, in reference to her former complaint, to have the opportunity of commencing a new life. If during that period she could be induced to keep her bed, in the most literal sense of that expression, for six weeks or two months, she would almost certainly secure herself against a relapse of her complaint subsequently to her confinement. In consequence of the prodigious development of parts interested in the business of gestation, nature is observed to exhibit a power of self-restoration and adjustment during the puerperal state, which at no other time nor under any other circumstance does she seem competent to exert. Hence, in cases of moderate prolapsion of the uterus incurred by forward conduct, during one confinement, a perfect cure may frequently be obtained by the patient confining herself to her bed, and maintaining rigidly the horizontal

position for at least five or six weeks subsequently to her next delivery.

A third item in the treatment of the disease under consideration, is to administer especially to the symptom which seems to have suggested for it the designation of "the irritable uterus." Under this head also the habitual observance of the horizontal position, and of great quietude even in that position, is an essential part of our duty to recommend. But the distressing pains incident to the complaint, are also in all cases to be very importantly relieved by soothing and pacific medicines. Of all the medicaments of this class, opium is incomparably the most powerful. But to the exhibition of opium there are often considerable objections; it generally produces constipation of the bowels, and it very frequently acts as an anticholagogue. When productive of neither of these effects, or when such effects can be conveniently and effectually obviated, opiate medicines may be prescribed in cases of the irritable uterus with much advantage. When the use of opium is contra-indicated, henbane or hemlock may be substituted, combined in the form of extract with an equal quantity of camphor and soap, so as to form five grain pills, one to be taken three or four times daily. When opium given by the mouth disagrees, it may nevertheless prove a very useful remedy in many cases if administered as an enema. With this view, a very convenient form is the extract of poppy dissolved in an ounce or two of gruel or barley-water. The quantity of the extract to be used at one time should range between five and fifteen grains, according to the urgency of the demand for its use. "The solution of poppy if retained, remains in the rectum till the next evacuation of the bowels, and until that time seldom ceases to soothe. If, however, this should not be the case, the injection may be repeated during the day, and as it is removed every time the bowels are evacuated, it should always be replaced by another injection. Want of exercise and narcotics almost always occasion constipation, which requires aperient medicines; but these must be of the most un-irritating kind. A purgative sufficiently active to operate several times, almost always aggravates the pain; and a long course of such medicines, which I have sometimes seen employed from the belief of disorder in the liver, has produced great and long-continued mischief. That is the best aperient which will act only once plentifully, and without pain; and those



which most frequently act in this way, are a solution of sulphate of magnesia in infusion of roses, castor-oil, electuary of senna, sulphur. Of one of these, enough to produce the effect which I have described should be taken every other day." Gooch's *Account of Important Diseases peculiar to Women*, p. 322.

Another remedy often used in painful affections of the uterus is mercury. In cases of "the irritable uterus," accompanied by considerable obesity, and such cases are sometimes, although not often, met with, the author thinks that he has seen this remedy do much good. In one case, which presents itself vividly to his recollection, a great variety of medicines and modes of management, and amongst others small doses of steel wine and the warm hip-bath, on the suggestion of Dr. Gooch, had been employed with little or no advantage, an alterative charge of mercury exhibited very cautiously, kept up for three months, to a degree only to have promoted the slightest possible ptyalism, produced a most admirable effect.

The author has not experienced any great advantage from the use of any preparations of iron in this disease, excepting when the irritation has obviously depended upon leucorrhea or painful menstruation. In the former class of cases especially he considers the carbonate of iron, given in ample doses, as a most powerful remedy. He has seldom had recourse to the use of the warm hip-bath. Bathings of any kind can seldom be made available without exposing the patient to much inconvenience from changes of position. He has consequently principally relied upon local bleedings, judiciously from time to time repeated, the observance of the most perfect rest in the recumbent position for an indefinitely long period, and upon the exhibition of mild charges of mercury, sufficient nevertheless to produce a slight ascertainable effect on the salivary organs. He has accordingly employed aperients, narcotics, and other classes of medicines, more as auxiliary than as principal remedies.

## CHAPTER V.

OF CERTAIN FUNCTIONAL DISEASES OF WOMEN, VARIOUSLY CLASSED  
BY NOSOLOGISTS.

OF HYSTERIA.—*Passio hysterica, affectio et passio uterinæ, suffocatio matricis, strangulatio uteri, malum hystericum, mal de mère, etc.* All these designations of the disease now about to be made the subject of some practical remarks, refer pointedly to the uterus as being either the source of its origin, or supposed to be a principal seat of its operations. Such were indeed almost exclusively the views of the ancients upon the subject. Modern nosographers, on the contrary, have more frequently classed hysteria among the diseases of the nervous system. Sauvage and Vogel placed it under their class of spasmi; whilst Cullen and Pinel placed it among their neuroses. Hysteria has been known as a remarkable disease from the earliest times; and in all ages it has been recognised as having some positive connexion with certain unknown or imperfectly understood conditions of the uterine system. In some respects it may be considered as a disease of a distinct character, and peculiar to the human female; whilst in others it would seem to claim many striking analogies with certain well-known maladies common to both sexes, and common also, in respect to some few of its symptoms, to the human and to other species of animals. Sydenham, for example, appears to have recognised so close an analogy between the hysteria of the female and the hypochondriasis more frequently referred to as a malady of our sex, that he was induced to identify them as one and the same disease; whilst by others, analogies the most striking have been traced between hysteria and mania, furor uterinus, epilepsy, hydrophobia, tetanus, etc. From its being a disease principally, if not exclusively, of function, hysteria, even its worst forms, has rarely terminated fatally. Hence the obscurity which has generally hung over the subject of its proximate locality or seat, and consequently the remarkable diversities of opinion which have existed on that point. On that subject the most ancient hypothesis is, that it is essentially an affection of the uterus. This opinion has still

many ardent supporters. Hippocrates considered the uterus as having an independent entity, endowed with the attributes of sensation, locomotion, and a self-governing volition; but, nevertheless, like the thinking human soul, susceptible of influences from causes remote from itself. Consistently with these fanciful views of its extraordinary powers, this organ has been represented as comprehending within its vortex a sort of furnace for the manufacture of malignant animal vapours, a class of fluids competent from their subtlety, added to their incomparable activity, to penetrate into all sorts of living tissues. From the central caldron within the pelvis, where these mysterious influences were supposed to be engendered, it was assumed that they possessed the power, under the potent direction of the uterine mind, of bursting into a thousand irresistible streams of noxious agency, and of traversing uncontrolled the inmost recesses of the abdominal and thoracic viscera, of ascending to the parts about the throat and even to the brain itself, and in short of being able so to embarrass the movements of life, as to threaten to involve in one common destruction all the functions of all the organs of the unhappy being who became the subject of their tempestuous operations. But to dismiss these hyperbolical descriptions, the hypothesis which maintains that the uterus is the seat of hysteria is supported by several very plausible arguments; viz., 1st. Hysteria is doubtless a malady peculiar to women. 2. It is a disease principally of such women as are partially or wholly restrained by the obligations of continency, whose uteri may well be supposed to be subject to the condition of a spermatic plethora. 3. The hand placed upon the hypogastric region, or the finger introduced into the vagina during the presence of an hysteric paroxysm, may easily recognise a remarkable movement of the affected organ. 4. A happy and productive marriage is, in a large proportion of cases, a remedy of the disease. 5. On recovering from an hysteric paroxysm, the patient is often cognizant of the presence of a profuse spermatic secretion, accompanied by a sense of voluptuousness. 6. Post-mortem examinations have exhibited important structural changes both of the uterus and of the ovaries.

With respect to several of the above positions, it may be observed that they seem to be considerably overstrained. It is, for example, very doubtful that continence ought to be ranked amongst the more frequent causes of hysteria; whilst it is



notorious to all the world that matrimony is far from being an infallible remedy for it. The hysteric movement, to be felt upon the application of the hand to the hypogastrium, is not common to all cases; and it is even asserted by a French writer of reputation, that this supposed attribute of the uterus has been recognised in some male subjects. Villemay, *Traité des Malad. Nerv.* p. 60. It has been much disputed whether the disease is really peculiar to the female sex. The same French writer quotes many cases of convulsive affections in the male subject, which bore the most striking resemblance to the hysteric passion of the female. Amongst several others, the author is able at this moment to call to his recollection one very remarkable instance of a convulsive paroxysm of this description, which occurred in the person of a very talented member of the present English bar. It lasted for about ten minutes. It was not repeated. Its cause was the sudden death of an only son.

The fact of a motion of the uterus being felt by the introduction of a finger into the vagina has been most positively denied; whilst, also by other writers, it has been asserted that there are no diseases which have left on organs supposed to be their seats, less evidence of structural changes produced by them than the present.

Hysteria has been known to coexist with the most perfect performance of all the known functions of the uterus and its dependent organs; viz., menstruation, conception, utero-gestation, parturition, and lactation.

The uterine hypothesis has been ably controverted by many eminent writers, among whom we may mention the names of Sydenham, Highmore, and Willis, in this country; and those of Stahl, Boerhaave, Raulin, and Lorry, with those of many others on the Continent. According to the opinion of the greater number of the above writers, hysteria is an idiopathic disease of the brain, common to both sexes, and therefore not essentially different in kind from epilepsy. Willis considered it to be a convulsive disease, and therefore a proximate result of a certain affection of the brain and nerves, having its origin often in the head, but sometimes in the visceral tissues of the other cavities of the body. Highmore attributes its paroxysms to an impeded circulation of the blood through the heart and lungs, and thence, according to him, the dyspnoea, the syncope, the determination of blood to the head, the compression of the intestines by the

diaphragm, and the sensation called the *globus hystericus*. Sydenham was probably the first to identify hysteria with hypochondriasis, and to connect both maladies with an irregular distribution of the animal spirits. Other writers have described both diseases under one and the same designation. Many writers have connected its proximate locality with different organs within the abdominal cavity, whilst not a few have especially identified it with certain unknown conditions of the nervous tissues subservient to the functional attributes of those organs.

The most characteristic phenomenon incident to this remarkable disease is that of the convulsions by which its subjects are agitated. Were all its other properties to present themselves at the same time in the same individual, unaccompanied by this, they would scarcely be recognised as constituting a case of hysteria. If we examine closely the character of the greater number of premonitory, concomitant, and consecutive symptoms of an attack of hysteria, we shall not find it difficult to refer a very considerable proportion of its phenomena to the head as their principal source, the disturbances manifested by the thoracic and abdominal viscera being almost always consequences of the violent spasms which characterise the malady.

If to that consideration we add that many subjects of hysteria, in its most violent forms, are often remarkable for possessing during the intervals between its paroxysms a good state of their chylopoietic functions, and that they exhibit the appearance of excellent general health, with much freshness of complexion; that the ordinary consequences of hysteria, when after becoming a disease of many years' duration such consequences follow, are most frequently lesions of the understanding, of the senses, and of the organs of voluntary motion; that at the commencement of the malady, the organs of nutrition rarely exhibit any remarkable disorders of a permanent character; that hysteria has sometimes been seen complicated with epilepsy and catalepsy; that a great proportion of the causes of the disease are intense moral affections: if all these circumstances are really as they are stated, then is the hypothesis which refers the disease to derangements of the cerebral system as its principal and primary source obviously entitled to much consideration. But although hysteria might thus very truly have for its source certain morbid conditions of the brain and spinal marrow in the first instance, it is nevertheless a fact of no little importance, that in the sequel the

viscera of the thorax and the abdomen become frequently seats of lesions deserving the most serious attention of the physician.

There, however, yet remain to be noticed several other hypotheses of the proximate cause of hysteria; such as displacements of the uterus, vitiated gaseous secretions having their source in the abdominal viscera, certain morbid explosions of the so-called animal spirits, visceral obstructions, functional feebleness of the alimentary canal, interrupted crises of constitutional diseases, accumulations of serous fluids within the encephalon, obstructions to the circulation and equable distribution of the blood in the head, heart, or lungs, morbid tension and induration of the nerves, some presumed neurosis of the uterus, and finally chronic metritis.

The two latter opinions may appear to deserve some portion of our attention. Pinel and Villermay are of opinion that hysteria is really a uterine neurosis; whilst Pujol, on the other hand, has publicly stated his belief, that "the hysteric affections of women are a production and a symptomatic effect of slow inflammation of the uterus."

As to the pretended neurosis of the uterus of Pinel and his disciples, it seems not improbable that the idea of it was first suggested on account of the difficulty encountered in attempts to discover any real lesions either of structure or functions in that organ. If such really was the fact, as insinuated by some French writers, it furnishes an evidence of the untenableness of the hypothesis. Pujol infers the existence of chronic metritis as the source of the malady under discussion, for the several reasons following; viz., 1st. Because post-mortem examinations have furnished indisputable proofs of the fact. 2. Because pressure applied to the hypogastrium occasions pain. 3. Because a great majority of the women who are afflicted by this disease, are also subjects of fluor albus and of great irregularities of the menstrual function. 4. Because hysteria frequently presents itself at the age when women cease to be regular, when consequently the uterus is often known to be affected with chronic inflammation. 5. Because pregnancy and parturition have frequently been observed to produce hysteria and other nervous affections, which have again disappeared upon the uterus being restored to its previous state of structural firmness and soundness. Pujol, *Essai sur les Inflammations Chroniques*. Of these various assertions, we may at least observe that many of them are diametrically at



variance with counter-statements made with equal confidence by other writers. In confirmation of the first assertion, for example, not a single pathological fact is adduced. The second statement is certainly in very many cases not founded in fact. Of the third we may observe, that it cannot be supposed to furnish any valuable evidence for the principle propounded; because fluor albus and menstrual irregularities are affections of too common occurrence, both among women who are and who are not subjects of the hysteric passion. The fourth is equally without foundation, for the best established facts prove that hysteria occurs most frequently between the ages of fifteen and thirty. The circumstances averred in the fifth and last statement go only so far as to furnish evidence of an influence exerted by the uterus in certain cases, without however supplying any proofs of the existence of metritis as the cause of hysteria.

Such have been some of the principal opinions of medical writers on the subject of the proximate cause of this disease. The hypothesis of its origin in some morbid but unknown condition of the cerebral system, may perhaps upon the whole deserve to be considered as the most probable. The reader, however, will be kind enough to observe, that all the speculations which have yet been offered on the subject, have amounted to little more than to SIMPLE STATEMENTS OF OPINIONS.

The REMOTE CAUSES admit of being better founded on observation and experience. The circumstances usually enumerated as having been most frequently observed to operate as predisponent causes of hysteria are, a certain degree of delicacy of constitution; a sanguineo-nervous temperament; great physical sensibility; an effeminate education; an ardency of the uterine system; difficulties and irregularities of the menstrual function; continence, whether constrained or voluntary; specific irritations of the uterus.

The more frequently operative moral causes under the same head are, an ardent imagination; a heart too susceptible of the tender passion; all painful as well perhaps as some of the most pleasurable affections of the mind; opposed or disappointed love; jealousy.

When from any of the above causes the predisposition exists, the most simple incident may suffice to produce a paroxysm of the disease. Villermay cites a case in illustration of this point, which, as being founded on French manners and French impres-

sions, could scarcely have taken place in this country. A young lady, said to have been the subject of hysteria from continence, fell into convulsions as soon as she saw a medical student, who had revealed to her the cause of her malady. The sight of other students of the same profession produced not the same effect.

In some cases, on the other hand, the predisposition has been so inconsiderable, that many causes have been required to unite their influence in order to effect an actual development of the disease. *Dict. des Sciences Médicales*, tom. xxiii. p. 231.

A particular age, or period of life, is usually noticed as one of the circumstances constituting a predisposition to this malady. But a mere liability to the disease, between the age of puberty and that of the final cessation of the menses, might often require to be united with some other circumstance or peculiarity of physical character or temperament to constitute any considerable predisposition to hysteria. On the other hand, A LIABILITY TO A RELAPSE of the complaint may be generally assumed to constitute of itself a predisposition sufficient for its re-establishment upon the application of an inconsiderable exciting cause.

Among the predisponent causes of hysteria, we may just mention certain individual susceptibilities to impressions founded on remarkable peculiarities of mind or states of the nervous system, constituting what have been very expressively called *idiosyncracies*.

Another source is to be ascribed in many cases to a congenital inheritance of physical conformations and temperaments. "The greater number of sufferers from this disease," observes M. Georget, "have descended from parents, or have been members of families, remarkable for their liability to nervous diseases, in the several forms of hysteria, epilepsy, maniacal affections, hypochondriasis, nervous headaches, deafness, blindness, palsies, etc.; or, as in other cases, the subjects of melancholia, irascible tempers, tempestuous passions, fits of suddenly difficult respiration, threatening suffocation, and of strangulation from spasmodic constriction of the larynx." *Dict. de Méd.* tom. xi. p. 532.

OF THE OCCASIONAL CAUSES OF HYSTERIA.—Among the principal OCCASIONAL CAUSES of hysteria may be instanced, 1st, certain states of the atmosphere in respect to temperature, humidity, density, noxious miasmata, electric phenomena, etc. 2. Personal exertions, either mental or bodily, unusually severe, or too long protracted. 3. Painful and irritating applications to the

surface of the body. 4. Great compression of certain parts of the body by ill-devised or worse-applied articles of dress, as stays too tightly drawn, garters, head-dresses, etc. 5. Acute pain, by whatever causes produced. 6. Unwholesome articles of food; wholesome food in excessive quantities; the abuse of wines, spirits, and fermented liquors; violent and irritating medicines; all ingesta calculated, whether by their quantity or quality, to impair the power or to disturb the process of digestion. 7. All influences productive of derangements of the secerning functions. 8. Morbid sequelæ of diseases, and chiefly of those of the nervous, sanguiferous, and secerning systems. 9. Peculiar states of these several systems, as connected especially with the uterus and its appendages. Under this latter item of causes, are of course to be included all derangements of the catamenial function, viz. painful menstruation; late appearance, retention, deficient or excessive quantities, irregular recurrence of the period, and suppression of the menses; vicarious substitutes for the natural discharge; the monthly function itself too long protracted; some forms of uterine hæmorrhage; all kinds of leucorrhæal profluvia; morbid consequences of abortions and premature labours; structural diseases of the uterus, and of its immediately contiguous organs; to all of which may be added, the peculiar excitements incident to the age and developments of puberty. The influence, indeed, exerted in the production of hysteria, by what foreign writers have perhaps not inappropriately called the uterine life of the sex, is not only unquestionable as to its reality, but almost unlimited as to the extent of its operation. It is not an influence merely of given states of an individual organ upon certain conditions of other organs contiguous in position or analogous in functions to itself, but one which would appear susceptible of being propagated indefinitely to any or to all the organs of the body, and even in some sense possessed of capacity to embrace within the wide range of its activity the entire being of the individual. Hence its remarkable aptitude to connect itself with the affections of the female heart, and thence consequently but indirectly its competency to rouse to exalted excitement, and even in many cases to actual frenzy, the nobler faculties of the soul. Hence, in a great proportion of cases, the impossibility of abstracting the consideration of this dominant agency of certain states or functions of the uterus in the production of hysteria, from that of their being connected together by the relationship



of cause and effect, as intimately perhaps and as necessarily, as we usually observe that relationship to be sustained in all other cases within the sphere of our observation. Hence, in fact, the dreadful efficiency of moral causes, as also the apparent contrariety of different influences of this kind, considered as agents in the production of the disease in different cases and in the same individuals at different times.

In concluding our sketch of the occasional causes of hysteria, we may observe, finally, for the sake of brevity, that it must necessarily embrace all material agents capable of stimulating the external senses; all objects of pleasure or pain which can be supposed competent to affect the passions and those phenomena of the mind which have been usually denominated the affections; and lastly, all objects of intense intellectual contemplation, or, in other words, of profound, severe, or too-long-continued employment of the higher faculties of the understanding. On the particulars of so wide a subject, the author cannot at present permit himself to enter. A disease so remarkable for its almost boundless varieties and combinations of causes, must indeed be expected to present a corresponding diversity of characteristic symptoms.

OF THE SYMPTOMATOLOGY OF HYSTERIA.—We may notice, as one of the principal symptoms of hysteria, the extreme mobility of character of the persons who are most frequently the subjects of it. Almost all hysterical women are highly susceptible of impressions, easily disturbed by slight causes, often endowed with much ardour of imagination, sprightly in their manners, vivacious and rapid in their movements, sometimes impatient and irascible in their tempers, and not unfrequently self-willed in their decisions, and obstinate in the pursuit and accomplishment of their purposes. They are also generally exceedingly sensitive to the action of external objects on the organs of sense, as likewise to the perception of changes of temperature, and other conditions of the atmosphere. Active and mobile during the day, seldom sleep either long or very profoundly during the night: their sleep, on the other hand, is often broken and imperfect, disturbed by dreams, and interrupted by sudden startings and alarms. Generally gay, even to frolicsomeness and folly, the subjects of this extraordinary neurosis are at other times unusually grave, too silent, apparently depressed in their spirits, and much addicted to private meditation and solitude. In short, they are

gay and gloomy alternately ; joyousness and weeping, each in its turn, quickly banishing the other. 2. Subsequently to the accession of the more decided and characteristic forms of the actual disease, there will often supervene an obstinate vigilance, with incessant and most distressing headaches, accompanied by a feeling of heat in the head, tenderness upon pressure, and exacerbation of the pain of the head upon the slightest movement. 3. In the intervals between those periods the patients are usually greatly depressed, sometimes the subjects of vertiginous sensations, morose and impatient in their tempers, incompetent for much connected thought, or for intellectual efforts of any kind, and equally incapable of pursuing with any advantage their ordinary occupations. In some cases the memory is impaired or nearly abolished ; whilst in consequence of the attention being preoccupied and intensely engaged in secret meditation, the patient exhibits in many cases an air of so much absence and insensibility as to have the appearance of a person deranged or slightly idiotic. A feeling of vertigo is sometimes accompanied by that of a buzzing or tingling noise in the ears, which often greatly distresses. Many women, especially in the summer, are subject to frequent somnolency and drowsiness, without however being able to enjoy much sound and refreshing sleep. Others are tormented with great restlessness, and perpetual action of their limbs or features followed by numbness, or even by spasmodic stiffness of the muscles of the same parts. The muscles of the larynx and pharynx seldom escape being implicated in these rigidities ; which indeed may be considered as constituting the first positive indication and actual declaration of the characteristic part of the malady. These partial rigidities of the muscles, especially of respiration, are frequently accompanied by deep sighs, gapings and yawnings ; all of which being strong premonitory symptoms of the approach of a paroxysm of convulsions. By these and other indications the patient is often competent to anticipate the result which is speedily to follow. M. Georget observes, *Recherches sur les Maladies Nerveuses*, tom. i. p. 268, that such of the unfortunate inmates of the Salpêtrière as are the subjects of this disease, are always cognizant of its precursory warnings, and apply to the assistants to be properly secured to their beds, and again to be set at liberty upon the remission of the paroxysm. The convulsions are in fact an increase in intensity of the headaches, agitations of the spirits, slight spasmodic

contractions of the muscles of the limbs and parts about the throat, and of the other symptoms just adverted to. These latter are observed to precede the actual paroxysm for a longer or shorter time; sometimes for twenty minutes or half an hour, and at other times for several hours, and even for days. It should be observed that the precursory symptoms in some cases acquire an extreme degree of intensity, so as to suggest the use of very strong language in the description of them; as those of "compression of the head against an anvil or between the cheeks of a vice, of its being battered and broken to pieces by the strokes of a heavy hammer; that of the brain being in a boiling state, or of its being in contact with boiling oil," etc. Some patients complain extremely of being constantly tormented by a sense of whizzing noises, and by that of fancied detonations or explosions analogous to those of certain operations in chemistry or electricity. These distressing sensations most frequently occupy the crown of the head; and least frequently the forehead or occiput.

When the patient ceases to be able to sustain a standing or sitting position, the entire muscular system or the greater part of it is seized with convulsions, the functions of sense and the faculties of the understanding becoming partially or wholly suspended; and she not unfrequently utters loud and hideous noises, such as have sometimes been compared to the howlings of wild animals. Most young subjects are said to call out for their mothers. In many cases the consciousness is not entirely abolished, the patient frequently comprehending what is said to her, and being cognizant of what is done to her and in her behalf. Wholly occupied however with the idea of her own extreme sufferings, she seldom finds time or inclination to answer questions.

One of the most characteristic symptoms of this malady on the invasion of a paroxysm, is an obscure sensation of a globular body, denominated the *globus hystericus*, ascending gradually from the pelvic cavity, or at least from the hypogastrium, to the throat; where it is felt to be in some sense arrested, and to produce a most painful sense of constriction and suffocation. It seems difficult to state positively the source of this singular movement. It well consists with the doctrine which identifies it with an actual produce of the uterus. Others have considered it as consisting exclusively in a spasmodic affection of successive portions of the intestines and of other muscular structures occupying the usual tract of its ascent from the hypogastrium to the throat.



That the uterus is really its source there is some reason to doubt. M. Louyer Villermay speaks of an impression of an indistinct movement felt IN THE REGION OCCUPIED BY THE UTERUS, and of that organ as of THE CENTRAL POINT whence it is probable the action in question takes its departure. "It then," he further observes, "seems to follow the course of the great sympathetic nerve, and to proceed in its route by a sort of oscillatory movement, sometimes rising towards the surface, and sometimes as if sinking towards the interior of the abdomen," until it arrives at the throat. The subject tissues of its agency are probably the muscular fibres of the tract along which it would seem to be directed. The author has often witnessed the impression produced by it on the abdominal muscles. The whole surface of the abdomen is thrown into violent and consecutive agitation, from the hypogastrium upwards to the chest and throat.

The muscular convulsions incident to this disease are either directly or indirectly an efficient cause of many of its other most important phenomena. The characteristic distortions of the face, it may be observed, are obviously effects of spasmodic contractions of its muscles. The masseter, zygomatic, and temporal muscles, are usually so strongly contracted as to bring the jaws into close approximation, and by the convulsive irregularity of their movements to produce a loud grinding of the teeth.

The smaller muscles about the mouth, and those which move the eyelids and eyebrows, are in general but inconsiderably agitated during the paroxysms of this disease. The eyelids are for the most part closed. The countenance usually presents the appearance of considerable animation and colour, and is indeed seldom, if ever, so much distorted as it always is in paroxysms of epileptic convulsions. The violent spasms of the muscles of the larynx are such as to produce extreme constriction, and a most painful and frightful sense of strangulation and suffocation. In almost all cases of hysteric convulsions, the function of respiration may be observed to be exceedingly impeded and disturbed. That function is indeed in many cases all but fatally interrupted and oppressed. This effect is manifestly produced by two sets of co-operating causes, viz. by the much-reduced dimensions of the thoracic cavity consequent upon the highly tonic spasms of many of the strong muscles, which act upon it and which form no inconsiderable portions of its parietes, and by the reduced dimensions and even temporary annihilation of the laryngeal

and tracheal tube, as already adverted to. In some cases the diaphragm remains for many hours immoveably contracted, so as to give the patient the sensation of a great barrier being thrown across her body at that part, together with the impression of being tightly bound round the waist by a strong cord. The muscles of the neck and back are sometimes thrown into a state of spastic rigidity, producing a sort of opisthotonos, and at other times into irregular contractions and relaxations, causing quick and sudden movements of the head and neck. Convulsive actions of the cervical and dorsal muscles are however much more frequent as well as incomparably more violent in cases of epilepsy than in paroxysms of hysteria. The muscles of the limbs are usually exerted with much force and violence, so as to be made to perform some most fantastic and powerful feats of flexion and extension; and if the patients be not restrained, they are involved in the liability of doing themselves considerable personal injury.

The state of convulsion just described, and spastic rigidity of certain parts of the muscular system, the reduced dimensions of the thoracic cavity, and especially the restraint imposed upon the circulation of blood through the lungs, must obviously tend to EMBARRASS THE HEART'S ACTION; not to add that the muscles of the heart itself may often be presumed to be similarly affected with those of other parts of the body. From the embarrassments thus sustained both by the heart and lungs, amounting in some cases to an almost total suspension of their functions, the blood which ought to circulate freely and without impediment through both organs, must thus manifestly become liable to be arrested, and therefore indefinitely to accumulate in the venous system, and more especially in the larger veins of the head, neck, and thorax. Hence in many cases the great turgescence of the face, and the enormous distension of the jugular veins. Hence also the confusion, suspended action, and as happens in some cases, the temporary abolition of the intellectual faculties. The heart overloaded on the one side, and almost totally bereft of its ordinary stimulus on the other, becomes in consequence the subject of tremendous palpitations; its prodigious struggles to throw off its impediments, and to recover its lost balance, being such as to be propagated perceptibly, and to a considerable distance along the trunks of its great arterial estuary the aorta, with which it immediately communicates, and into

which it is a principal part of its office to discharge its arterial blood.

Such are some of the more common phenomena of a paroxysm of hysteria. After the lapse of an indefinite period of time, the more violent symptoms gradually subside. The patient is observed to breathe with more regularity, and to fetch deep sighs. On partially recovering her sensibility she often moans piteously, utters expressions of profound distress, and in the midst of her now more conscious misery, she weeps bitterly and sheds successive floods of tears. After experiencing a violent headache, which often continues for many hours, much depression of spirits, a sense of great exhaustion and fatigue, and of great lassitude and of painful stiffness of the muscular parts principally agitated or for a long time rigidly contracted during the paroxysm, she eventually recovers her previous state of health. It has been already hinted that the duration of hysterical paroxysms is subject to great variety. Some of its accessions may be said scarcely to amount to actual paroxysms. A little inconvenience may perhaps be sustained from a slight affection of the muscles of the throat, and a trifling disturbance of the spirits from apprehension of what may follow, may be experienced, and the threatened storm blows over. A moderate paroxysm is sometimes observed not to occupy more time than a quarter of an hour or twenty minutes. But those which usually distinguish the worst forms of the disease, are protracted, with occasional remissions, over several hours. Some few and peculiar cases, which again we shall have briefly to refer to, have been known not to yield till after the lapse of many days.

The above enumeration of symptoms, though it includes such of the phenomena of the disease as are most frequent and common, is a much too limited account of it, to be considered by the reader as an adequate pathological history of hysteria under all its forms. Nothing for example has yet been said of the mutual influence subsisting between this extraordinary malady and the functions of digestion; and yet it is well known that these important functions are most materially disturbed and impaired by some of the stormy and long-continued visitations of the hysteric passion. In many cases even the essentially antecedent function of deglutition is not a little injured, and for a time often rendered impossible by the stubborn and long-protracted spasms of the muscles of the throat, which in many cases constitute a



prominent part of the disease. The contents of the stomach appear to be sometimes ejected by a convulsive action of the diaphragm, sometimes perhaps aided by a similar action of the abdominal muscles. Such vomitings are simply accidental occurrences, proximately produced by convulsive action of muscular portions of the diaphragm, and especially to be imputed to the accession of a paroxysm of the disease soon after a meal. In other cases, however, the vomiting may more reasonably be attributed to a morbid state of the stomach itself, as also possibly to the mass of aliment remaining too long a time within its cavity without being digested: both conditions being of course remote effects of the morbid influence of the disease upon the organs of digestion.

But vomiting is not the only example of a disordered state of the stomach ascribable to the influence of the presence in the system of what we might be permitted to designate a confirmed hysteric diathesis. On the other hand, the greater number of subjects of this disease are heard frequently to complain of want of appetite, dislike of particular foods, pains of more or less violence in the epigastric region soon after eating, a sense of weight and oppression, or that of tension or of flatulent distension of the same part, during the time when the process of digestion should be going on with facility and vigour. Hysterical females, it is moreover well known, are exceedingly liable to acidities of the stomach, tormenting flatulencies, and depraved appetites for offensive and inedible ingesta. The extreme depression of spirits to which the greater number of sufferers from this malady are especially subject, is in almost all cases to be ascribed to feebleness or failure of the digestive process.

The author has met with several cases of hæmatemesis amongst his hysterical patients; see *Georget*, tom. ii. p. 279; but not one which he did not consider a distinct example of vicarious hæmorrhage, instituted for the relief or at least during the presence of suppressed menstruation. See the case of Miss A., *Princip. and Pract. of Obst. Med.*, 4to edit., vol. i. p. 409, and that of Miss M. in the same volume, p. 410.

Since the time of Sydenham the attention of physicians has seldom failed to be directed to a fact, which is supposed to constitute an essential feature of hysteria, viz. that of an unusually abundant evacuation of pale limpid urine, immediately upon the going off of a paroxysm of the disease. "On this subject,"

observes M. Georget, "I would remark that much exaggerated importance has been attached to the circumstance in question, since, in the greater number of cases, the attention of patients is not particularly arrested by it; or it is found not always to be a fact; and after all it is well known to be a result in some sense common to all cerebral irritations, nervous or otherwise. M. Vauquelin has discovered in the urine of those patients a particular acid of a rose colour." *Maladies Nerveuses*, tom. ii. p. 278. The author does not recollect to have met with more than two or three cases of hysteria of which the paroxysms were not followed by this result. He can, however, easily suppose that it may not have been observed in certain forms of the disease, as for example, in cases of hysterical fainting, swoons, etc. The increased secretion of the kidneys is probably exclusively attributable to the accelerated circulation which we observe to take place in severe cases of hysteric paroxysms. "The real proximate cause of this symptom is always the same, viz. an increased motion, together with some degree of constriction of the secretory vessels of the kidneys. The first augments the quantity, and the other occasions the pale colour of the water. Although it must be owned that this colour is principally owing to the quickness of the secretion of the urine, and of its passage through the bladder, before the finer parts are absorbed, and it has had time to acquire the common smell and taste, as well as the colour of that fluid." Whytt on Nervous Diseases, p. 596.

In the absence of such a state of the circulation, and, in some cases, by reason it is possible of other causes, the secretory function of the kidneys has been almost totally suppressed. The author has seen two cases of this kind, and the reader will find one quoted from M. Pomme in the 4th edition of this work, p. 412.

Among the distressingly painful affections to which hysterical females are especially subject, is that peculiar sensation of torture which has received the designation of *clavus hystericus*. The sensation is that of a nail being driven into some part of the scalp. It bears something of analogy to neuralgia. Its locality is usually the forehead, not unfrequently verging towards one of the temples. This symptom is to be considered as in a great measure characteristic of hysteria; although in more cases than one the author has met with it among women of feeble and

cachectic constitutions, who had never experienced any paroxysms of that disease. It is moreover worthy of observation, that very severe pains of the forehead and temples are not unfrequently produced by irritation propagated to the nerves of the same parts from decayed teeth. In predisposed subjects it is moreover not at all improbable that the irritation here supposed, continued for a great length of time, may eventually prove competent to become an occasional cause of actual hysteria. The true *clavus hystericus* is not often an accompaniment of pregnancy. In one case, however, in the author's practice, of what he certainly considered a genuine example of the hysteric *clavus*, the pain was greatly relieved by the extraction of three carious teeth, and in about a month afterwards it was totally and permanently removed by large doses of carbonate of iron.

Analogous to the above pains of the head is another painful affection to which many subjects of hysteria are liable; viz. a pain of the left side below the breast, and extending from the *scrobiculus cordis* towards the heart. There is in this affection a most acute sense of pain without much external tenderness and without swelling. "The patient cannot lie on the affected side, and the disease resists for months, sometimes for years, all varieties of treatment. Although we have said that these cases are often connected with uterine irritation, the depraved state of the appetite, occasional sickness, and obstinate sluggishness of the bowels, make us doubt the propriety of laying great stress on the uterine disorder. In these cases, or in most of them, there is some pain referred to the lowest part of the back; and there is a tenderness of the spine confined to the dorsal region. The pain of the sacrum is a common complaint with females in whom the uterus is unhealthy; but neither the dorsal tenderness nor the sacral pain is present in many of the examples of the *clavus hystericus*, even when most clearly arising from uterine irritation. These circumstances, which we have very carefully verified, are incompatible with the uterine theory of diseases, which we shall have to notice when speaking of the causes of hysteria." Conolly on Hysteria, *Cyclopædia of Practical Medicine*, p. 561. The same writer proceeds to state that the female breast "is in some hysterical cases the seat of much pain, and is also enlarged and hard; so that the patient dreads the occurrence of cancer, although at an age when the practitioner has no apprehension of it. Dr. Darwall mentions a case in his remarks on spinal irritation, where this was combined with tenderness of the three superior dorsal ver-



tebrae, and all the symptoms were relieved by cupping." These painful affections of the breasts are probably dependent in most cases on functionally morbid conditions of the uterus. They usually occur in very young women, and before the developments of the uterine system might be presumed to be completed. They are ordinary attendants on painful menstruation, and also on leucorrhœal profluvia in their simplest forms. The author is here reminded of a case which occurred some years ago in his own practice at the Dispensary for the Diseases of Women and Children, in Queen-street, Lincoln's Inn Fields. The subject of it had menstruated regularly, but with great difficulty, for about a twelvemonth. During the menstrual periods she was the victim of most torturing pains of the left side of the head, which occasionally remitted for many hours, and then alternated with an irregular sort of paralytic shaking, together with a slight inclination of it towards the right shoulder. These extraordinary symptoms continued for about eight days, when they gradually subsided, to return again on the eve of the next monthly period. The poor girl was a patient of the Dispensary for several months before she received any considerable benefit. She was treated at different times by purgative medicines, metallic tonics, including preparations of iron, copper, zinc, and silver, the principal vegetable tonics, some of the narcotics, especially opium and hyoscyamus, mercury in alterative doses, and even carried during a period of about three weeks to an extent sufficient to affect the gums: all of which, however, was attended with little or no advantage. The case ultimately yielded to the action of a seton introduced at the nape of the neck and allowed to discharge freely for several weeks.

This may be a suitable opportunity to notice a supposed symptom of hysteria, which the abettors of what has been called the uterine theory of the disease have seldom omitted to mention as a part of its history, viz., the circumstance of a uterine secretion of a muco-spermatic character, being generated during a paroxysm of hysteria, and in such quantity elaborated as to present itself abundantly on the external genital surfaces, accompanied by a sense of voluptuousness, and productive more or less perfectly of a subsidence of the convulsive action. Independent of any particular doctrine as to the seat of the disease, the point here predicated may be admitted to be an occasional result of the extraordinary commotions of the organs in and in the neighbourhood of the pelvis, without its being necessarily ascribable to any

operation of the sexual passion; or it might indeed be admitted that in individual constitutions, the passion in question might be roused by the mechanical agitations to which the genital organs are liable during paroxysms of hysteria, without necessarily connecting the passion and the muscular disturbances incident to the malady together in any essential relationship of cause and effect. The subject-matter of this statement was probably first propounded by Galen, in his Commentary on the Sixth Book of Hippocrates. Charleton, *Exercit. Pathol.* No. 7, adopts the same opinion. “*Mulieres quædam acribus copiosis spermatis igniculis prurientes, desiderio consuescendi cum viris in sæva hysterica pathemata incidunt; hinc tantus in virginibus juxta ac fœminis salacioribus mali hysterici est proventus.*” Founded on this assumption of the cause of the disease, some very extravagant indications of treatment were suggested and acted upon by some of the writers of the last and preceding centuries. It is observed by Sauvage, *Nosolos. Method.* vol. i. p. 589, *Clitoridis titillatio a barbitonsore impudico instituta paroxysmum solvebat.* Villermay, *Dict. des Sciences Médicales*, tom. xxiii. p. 242, quotes some statements of Zacutus Lusitanus, for cases illustrative of similar doctrines and practices. “*Titillatione et fervore quodam in utero concitato copiosum semen excernens, ab accessione sæva superstes remansit.*” After which he proceeds to submit the following extraordinary question; viz., “*Num virgo, ut propriam sanitatem recuperet, possit sine peccato, medico id patienti, sui corporis copiam facere?*” Respons. Negat. Sibylla trig. andriana, seu de virginitate tractat. Henric. Kornmann. Colon. 1765, p. 136. On this subject generally the author takes the liberty of observing, that on what he has considered the best possible evidence of testimony, he feels the most perfect assurance that a utero-vaginal secretion is not in all cases a sequence of paroxysms of hysteria. 2. That a sense of voluptuousness is not a constant nor even a frequent attendant upon the peculiar disturbances incident to the same malady. 3. That the notion of a spermatic discharge is founded on an antiquated doctrine, which recognises the existence of a seminal fluid in the female; a doctrine which does not consist with the established facts of a more modern and correct physiology. 4. That the material of the utero-vaginal discharge on which M. L. Villermay has so much insisted in his favourite theory of hysteria, is no more than the ordinary and natural secretion of the mucous surfaces of the

organs in question, occasionally, as in many other cases, MORBID IN QUANTITY. It may indeed be stated, as a general fact, that hysteria is often complicated with profuse leucorrhœal discharges. 5. Hysteria is frequently an accompaniment, and possibly therefore in many cases an effect of diseased functional conditions, and even of structural diseases of the internal genitals. Such states are usually accompanied by mucous and leucorrhœal discharges.

That hysteria is in many cases a remote effect of disappointments, jealousies, and other painful states of mind connected with the best affections of the female heart, and ultimately productive of disordered states of the organs which are peculiarly feminine, there can be no good reason to doubt; of which fact indeed almost all tracts and theses on this subject abound with examples. “Non solum in animum impetum facit amor; verum et in corpus sæpenumero tyrannidem exercet vigiliis, curis, macie, dolore, tabitudine et mille aliis affectibus lethalem noxam inferentibus, corpus vexat.” Plato de Amore. Of the effects of the passion alluded to by Plato in the passage just quoted on the bodily functions of woman, the reader may consult an eloquent description by M. L. Villermay, *Maladies Nerveuses*, vol. i. p. 46.

After some general observations on the influences of diverse states of mind in the production of hysteria, that author proceeds to remark especially, THAT THE MOST FREQUENT, AND THE MOST POWERFUL, AND THE MOST DURABLE of all the mental causes of hysteria is the sentiment of love, more particularly if the party be in a situation to feel herself obliged to conceal it. When, on the other hand, an avowal of partiality is followed by a suitable return; when, above all things, the hope of legitimate union, of a happy accomplishment of ardent vows, is permitted to be confidently entertained, we may always observe a diminution of the intensity of the symptoms incident to the disease, as well as of the frequency of its paroxysms. Its accessions, on the other hand, acquire a new vigour when the darling hopes here spoken of are contravened, when circumstances arise to produce jealousies, doubts, and despair; or even when the earnestly anticipated alliance is put off for an indefinite period of time.

To return to special complications of hysteria with other diseases. It might naturally be expected to be often proximately associated with other convulsive affections. Hence its occasional association with croup. *Cyclopædia of Practical Medicine*, Part xi. p. 564. Spasmodic Asthma. Bucker, quoted by M. Vil-



lermay, *Maladies Nerveuses*, tom. i. p. 94. Hysterical hiccup, spasmodic exclamations, and of hysteric dysphagia. Bright's Reports of Medical Cases, etc. vol. ii. p. 457, case 211, 212, and 216. To the same class of cases we may be permitted to add some other remarkable symptoms which have sometimes been associated with the hysteric constitution; such as certain periodical palpitations of the heart, as exemplified in the peculiar convulsive fits of Zetland; Whytt's Works on the Causes of Nervous Disorders, p. 582; some forms of chorea; the hydrophobia mentioned by Dr. Conolly, *Cyclopædia of Practical Medicine*, art. Hysteria; and especially all complications of hysteria with any forms of catalepsy and epilepsy, with which it has been associated.

It is not an uncommon incident in public hospitals to see some of the younger female patients falling successively into fits of hysteria in consequence of seeing their immediate neighbours of the same wards similarly affected. The best illustration of this curious example of morbid sympathy is that which we find recorded by Dr. Abr. Kaau Boerhaave, *Impet. faciens Hippocrati dictum*, § 406, of the remarkable cases of this kind which occurred in the practice of his more celebrated uncle, the learned Dr. Boerhaave, in the poor's-house at Haerlem. "In the poor's-house in the city of Haerlem, a young girl greatly terrified fell into a violently convulsive disease, which returned in successive paroxysms. One of the spectators and assistants, perhaps the most devoted to the performance of her friendly offices to the patient, was seized by the same disease. On the following day another was seized in the same way, and presently a third and a fourth, and at length nearly all the occupants of the same ward, boys as well as girls. A most miserable state! observes the learned reporter of the scene. One was seized here, a boy; another was seized there, a young female. The one observed the fate of the other, and all, or nearly all, became prostrate together. The most skilful physicians had recourse to the exhibition of the most approved anti-epileptic medicines in vain. It was at length determined to seek the assistance of the celebrated Boerhaave, who, pitying the unhappy lot of the pauper establishment at Haerlem, was induced to go over to pay it a visit. On examining into the matter, he observed, that on the invasion of a paroxysm of the disease in the case of one of the patients, many others were immediately seized with similar convulsions. The best remedies having already been exhibited in vain by very

intelligent practitioners, who had very duly recognised the extraordinary influence which the imagination seemed to have exerted in propagating the malady from one person to another; that eminent physician nevertheless believed, that by restraining the operation of that influence, he might still be able to obtain a cure, and he did obtain a cure. The magistrates of the city having been privately advised of his intention, and being all assembled, he ordered portable furnaces to be placed in different parts of the gallery, and strong fires to be kindled in them, and to be well fed and kept up by the most rapidly burning firewood. Into these several furnaces he then ordered iron hooks of a particular shape to be thrust in order to be made red-hot. When all was ready, he spoke loudly to the following effect: ‘ Since all other means have fallen short of our object, I know of only one remedy to propose, which however I expect will prove an infallible one, viz. that of applying one of these red-hot implements to the naked arm and carried down to the bone of the first young man or woman who shall be seized with a paroxysm of this cruel disease.’ As the whole of this address was enunciated with the utmost gravity, the inmates of the establishment were all much terrified, and stood aghast at the idea of a remedy so barbarous. The stronger impression, the fear of the pain of being burnt, prevailed over the influence of the extraordinary sympathy which had hitherto been competent to propagate the disease; and no person, either male or female, became on that occasion the subject of a paroxysm.

Constitutional changes and strong physical impressions have not unfrequently the effect of suspending the action of what we call the hysterical constitution. Alibert reports a case of alternation of hysteric symptoms with a catarrhal fever. Louyer Villermay, tom. i. p. 94. It is a very common remark in marshy districts, that hysterical girls are almost always relieved of their fits upon their becoming subjects of intermittent fevers. A hysterical woman, soon after a puerperal confinement, became the subject of an abscess, which terminated in a sinuous ulcer. As long as the ulcer continued to discharge, which occupied a period of about seven months, the patient remained unmolested by her fits. Subsequently to that result, however, the old malady returned in all its force. Reil reports a case of fracture in a hysterical subject, and observes, that as long as the ends of the fractured bone remained ununited, the patient experienced no paroxysm of

her complaint, and subjoins his opinion that in the case in question there was no good reason for supposing the existence of any kind of metastasis. Reil, *Medicina Clinica*, p. 179. It has, moreover, been very commonly observed, that hysteria is usually totally suspended, and in all cases greatly mitigated, during the presence of pregnancy. This fact constitutes, indeed, the substance of a well-known aphorism of Hippocrates. The following case from Hoffmann is selected for an illustration of the same point: "A woman of about thirty years of age sustained an abortion, which was followed by the escape from the uterus of a formidable mass of concreted blood. After the lapse of a twelve-month from the date of that event, she became rather suddenly the subject of violent convulsions, which was attributed to the use of improper food, and also to catching cold during a catamenial period. During her paroxysms, the lower extremities, the feet especially, were affected by vehement spasms. She vociferated loudly, gnashed her teeth, etc. These paroxysms returned periodically, and indeed concurrently with the returns of the menstrual function. Their invasion was always sudden and without being preceded by any premonitory symptoms. At length, however, the fair patient found herself pregnant. During the whole period of her gestation, she enjoyed a perfect immunity from her convulsive disease. At the completion of her pregnancy, she became the happy mother of a living child. During the first days of her convalescence, she had a good lochial discharge. On the tenth, however, this essential profluvium became small in quantity and vitiated in quality. It must, however, be added, that the bowels had been in a very torpid state during at least the first six days after the patient's delivery. Subsequently to these results, there supervened a sense of pain and tension, as also of giddiness in the head, together with much flatulence and violent griping pains of the lower parts of the abdomen. The patient gradually lost her rest at nights and also her appetite, and at length she again became the subject of her former convulsive disease," etc. Hoffmann, *de Malo Hysterico*, tom. iii. obs. vi. p. 60.

Physicians have sometimes found it difficult to establish a perfect diagnosis between hysteria and epilepsy, and hence they have occasionally attached to the former something of the character of the latter disease. Epileptics usually foam at the mouth, become the subjects of their convulsions without being



apprised of their danger by any premonitory indications, and during their paroxysms sustain a total loss of consciousness. When fits of hysteria are observed to approximate in their symptoms to any of these characteristic attributes of epilepsy, the malady has frequently been designated epileptiform, and by certain abettors of the uterine theory of hysteria, UTERINE EPILEPSY.

OF THE DIAGNOSIS OF HYSTERIA.—The principal difficulty attendant on the DIAGNOSIS of hysteria is the fact of its being frequently accompanied by coexisting symptoms of other diseases. Simple hysteria, when it presents itself in its ordinary form, is so peculiar and characteristic, that it cannot well be confounded with any other disease, even of the class neuroses. Some writers have indeed taken very useless pains to distinguish hysteria from HYPOCHONDRIASIS. Even the observant Sydenham fancied that he recognised an intimate analogy between the two maladies. This analogy was probably supplied to that eminent individual by his theoretical assumption of their originating in a common cause, viz. in a certain morbid state of the cerebral and nervous systems. But inasmuch as even at the present day we have not arrived at any positive knowledge either of the cause of one or the other malady, it is a matter of obvious inference that the whole theoretical structure must fall to the ground. If, on the other hand, we attend to the symptoms of the two diseases, we can scarcely discover any attributes which they possess in common. It may indeed be said that the subjects of each are liable to certain peculiarities and variations of spirits: but even in this particular, there is an obvious difference between the vapours, as they have been called, of hypochondriacs, and the unequal spirits, sometimes high and at other times low, of the subjects of hysteria. There are, moreover, certain symptoms which are especially pathognomonic of the hysteric passion; viz. alternations of fits of crying and laughing, convulsive actions of muscles, especially those about the throat, the symptom called the globus hystericus, that of the clavus hystericus, and a few others, which however it would be too tedious to enumerate, but which are essentially absent in hypochondriasis. In some respects it might indeed be correctly stated, that some of the symptoms of the one disease are found complicated with certain characteristic attributes of the other. Many hysterical females, for example, are liable to very great disturbances of their gastric

functions, whereas disorders of those functions are perhaps upon the whole more frequently and essentially a part of the history of hypochondriasis.

The author has seen two cases of ST. VITUS'S DANCE, of which the phenomena very much resembled those of hysteria; and in one of them there were certainly present some symptoms essentially pathognomonic of both diseases. The subject was a young lady whose period of puberty was just developed. She had menstruated sparingly two or three times. The spasmodic actions of the muscles of the arms were strikingly such as we meet with in St. Vitus's dance, as were also the convulsive twitchings of the muscles of the face; but together with those symptoms the patient was not a little annoyed by one affection peculiarly hysterical, viz. a sense of painful constriction of the muscles of the throat, which had the effect of very greatly disturbing her respiration. Being a sanguineous, plethoric subject she was bled freely, and afterwards smartly and repeatedly purged, and was thus cured of both her complaints.

The diagnosis between hysteria and SYNCOPE admits of a pretty easy explanation. Syncope consists exclusively in a suspension of the action of the heart, from whatever cause arising, and as such may become a symptom OR A PART OF HYSTERIA; but not properly that disease itself. When it occurs as a principal symptom of a hysteric paroxysm, the case may deserve the designation of hysterical syncope; but syncope is often known to exist totally independently of any connexion with a hysterical diathesis.

Hysteria may usually be distinguished from APOPLEXY by their respectively pathognomonic symptoms. In most cases of hysteria the patient retains a certain degree of consciousness and of susceptibility to impressions; whereas in all cases of confirmed apoplexy there is a total abolition of these attributes. After a paroxysm of hysteria the patient will frequently find herself competent to recollect many of the incidents which had occurred, and been especially urged upon her attention during the fit; whereas the subject of apoplexy has no cognizance whatever of any event or circumstance which had taken place during the lethargic state incident to that disease. In a case of apoplexy, the breathing is especially characterised by a difficulty which the air encounters in its passage through the fauces and nostrils, to which the descriptive epithet of stertorous is usually applied;

but this difficulty, or rather peculiarity, of respiration, is never a symptom of simple hysteria ; the impediment to that function, when any difficulty is experienced, being then occasioned by a morbid reduction of capacity of the laryngeal and pulmonary passages, the effect of spastic rigidities and contractions of their respective muscles. Again, in apoplexy the face is swollen and of a purple hue, from an extraordinary turgescence of its blood-vessels ; whereas in hysteria it is in many cases, though not always, more than ordinarily pale and contracted.

EPILEPSY is perhaps with more difficulty distinguished from hysteria than any other disease. The principal distinctions are, that epilepsy attacks its victims suddenly, and without warning ; whereas in hysteria the patient can very frequently anticipate, and consequently prepare herself for, the invasion of a paroxysm of her complaint ; that a fit of epilepsy is accompanied by a total abolition of consciousness, whilst in paroxysms of hysteria the patients are usually in some degree conscious of their own sufferings, and cognizant of what is said and done in their presence ; that in epilepsy the convulsions are more violent, producing greater distortions of the features, and more universal, and therefore affecting a greater number of muscles than they do in hysteria ; that a fit of epilepsy is usually of comparatively short duration, seldom exceeding that of a quarter of an hour or twenty minutes, whilst paroxysms of hysteria are sometimes protracted for many hours ; that, in epilepsy, there is always much foaming at the mouth, whereas in hysteric paroxysms that symptom is either totally absent, or is observed to present itself in a very inconsiderable degree ; that during an epileptic paroxysm the pulse acquires both greater strength and frequency than it possessed before, whilst in hysteria it becomes smaller and more contracted, although, as in the other case, it generally acquires an increment of frequency ; and lastly, that epilepsy leaves stronger impressions of its effects on the features, manners, and on the general health of its victims, than are entailed on its subjects by paroxysms of hysteria.

It is worthy of remark, that what we may be permitted to call the hysteric diathesis has not unfrequently the effect of modifying the character, of exasperating the symptoms, and even of suspending the action of divers other diseases. This circumstance has induced some writers to distribute the accidental complications of hysteria into so many distinct varieties of the



disease itself. Hence, coughs, consumptions, local and inflammatory affections, fevers, states of the stomach and bowels, all unusual affections of muscles, many states of nerves, certain conditions of the vital functions, some of the phenomena of mind, peculiarities of manner and character, and even tricks of habit, have been made available for the extension of these useless distinctions. It is indeed a fact, very well established by experience, that the morbid actions of hysteria may not only modify and complicate, but also, as happens in many cases, subdue or become themselves substitutes for, those of other diseases. Such alternations and complications of diseases may, indeed, often test the sagacity of the physician; but they should not be permitted to confound all our more correct notions of logic and nosology. A well-digested system of diagnosis among the various forms and complications of hysteria, might doubtless be constructed into a work of considerable practical value; but the materials of such an undertaking are obviously too multifarious and extended to admit of its being attempted in the present article. We will therefore now proceed to the consideration of the TREATMENT of this interesting malady.

OF THE TREATMENT OF HYSTERIA.—If there be any point of practical interest on which the writers on hysteria have been all agreed, it is that of the great difficulty and unsuccessfulness of its treatment. To discuss this branch of our subject, however, with as much clearness as its essential obscurity and abstruseness may admit of, we shall consider it in the order of the following practical subdivisions: viz. The treatment of hysteria, 1st, during its paroxysms; 2ndly, when recent, and in its simplest forms; and, 3rdly, when chronic and exasperated by some of its principal and more formidable complications..

The personal management of a patient in a fit of hysteria is generally very simple and easy to those who understand the subject. All that is necessary to be done, in the greater number of cases, is merely to restrain and to repress the violence of the convulsive movements incident to the disease. This may be done, partly physically, by mechanical coercion, and partly morally, by urging on the patient's attention the propriety and great importance of using all the means in her own power to repress the inordinate actions of the disease. In meeting the first of these indications, care should be taken to give to the patient's hands and arms as much freedom of movement as may

consist with her own safety. The movements of the head should be particularly watched, inasmuch as some women have been known to make efforts to knock their heads against bedsteads and other hard bodies. A very common action in hysteric fits, is to carry one or both hands to the throat, the seat probably of some distress at the time, and to gripe it with much apparent violence. This action should be restrained within moderate bounds, but perhaps not altogether prevented; as probably it may have some slight effect in relieving the distress which it attempts to remove. In other cases the hands are seen applied with similar violence to the breasts and the *scrobiculus cordis*. This action is probably adopted to relieve a painful sense of stricture, which is felt in such cases to affect the intercostal muscles and those of the diaphragm. On the same principle, therefore, as in the affection of the throat, it should be similarly watched and moderated.

It is seldom that the tongue is protruded from the mouth in cases of hysteria, and therefore it does not so often require to be guarded from the action of the teeth, as it does in cases of epilepsy. There are, however, exceptions to this rule, and when they occur the usual precautions should be adopted of insinuating a roll of diaper cloth between the teeth, due care being taken that the napkin when introduced shall not be of a size to interfere with the action of breathing.

The moral influence to be used with a view to restrain the violence of the convulsions incident to hysteria, should perhaps never exceed the limits of earnest and judicious exhortations to the practice of self-control. The fact is beyond a doubt that such control is in a great number of cases, and to a very beneficial extent, within the patient's power. Stronger moral influences than that of persuasion have indeed sometimes been made available for the mitigation and subduction of these convulsive actions; but violently painful impressions, especially such as have been sought to be produced by the infliction of sudden terror, have been known to have greatly exasperated the malady; and, if we may credit the older writers, to have converted hysteria, under some of its mildest forms, into cases of incurable epilepsy.

Our indications of medical treatment DURING THE PAROXYSMS of this disease, should have for their objects, to alleviate the sufferings of the patient, to shorten the duration of the fit, and to

shield the organs and functions most vitally concerned in the tempestuous phenomena of the malady from dangerous or fatal lesions.

One of the most prominent symptoms of hysteria during the paroxysm is the distressing difficulty of breathing, occasioned by the painful spasms which usually affect the muscles of the throat; for not only is the spastic constriction itself of the larynx a painful condition, as we see sufficiently indicated by the action of carrying up the hand and violently seizing and pulling at it; but it acts as a cause of two other painful sensations, viz. that of strangulation as if from the action of a rope or tight collar, and that of suffocation from want of due supply of atmospheric air for the purposes of respiration. In other cases, and indeed often complicated in the same individual with the above spasms of the larynx, the patient has to sustain a similarly morbid action of the muscles of the diaphragm, and of those of the abdomen, including whole tracts of intestinal muscles, and even not unfrequently of those of the heart itself. To relieve those spasms, and especially to remove all impediments to the function of respiration, must therefore be considered a first object of medical treatment.

Whilst the means most relied on for the attainment of this object are sent for or being prepared, all tight ligatures and bandages should be relaxed or withdrawn, fresh air should be freely admitted into the patient's chamber, unnecessary assistants and spectators should be requested to withdraw, and all causes of irritation carefully removed.

Amongst the means of effecting the alleviation of spasms, friction of the part affected may be mentioned as the one most immediately accessible and applicable. The author has repeatedly seen friction applied with considerable force to the throat and to the scrobiculus cordis and abdomen, produce very decided relief of the convulsive actions of the muscles of those parts. It is not uncommon to see the attendants on hysterical subjects apply friction, with or without aromatic volatiles, to the temples, hands, neck, etc. These little services are perhaps, in some degree, useful as counter-irritants; but they would be much more so if they were applied more vigorously and more immediately to the parts just mentioned, as being most implicated in the disturbances of the vital functions.

The application of volatile and odoriferous substances to the



nostrils is both an ancient and an universal practice. The substances most frequently used for these purposes have been oxycrats, alkaline volatiles, preparations of ether and spirits, preparations of aromatic and foetid gums, the vapour from burnt feathers, etc. The author is not very sure that he has ever seen any striking advantage derived from this practice, however universally he knows it to be adopted. But inasmuch as many able writers have spoken of it with great approbation, and published no small number of cases in illustration of its utility, and it is not probable at all events that it can be of POSITIVE DISSERVICE, he feels diffident of his right to attempt to dissuade any one from its employment.

Of the utility of some of the above substances, administered as INTERNAL REMEDIES for hysteria, he is happy to observe that he entertains a much more favourable opinion. The foetid gums given in adequate doses by the way of the stomach, have an undoubted power of relieving, perhaps in some cases of temporarily subduing, the convulsive actions incident to this malady. The most powerful antispasmodic is opium. But the exhibition of medicines in such cases is not always practicable through the medium of the stomach. Sometimes the patient cannot swallow in consequence of the pharynx being spasmodically closed, whilst in others her consciousness might be so much impaired or obliterated as to make an attempt to exhibit medicines by the mouth a dangerous experiment. In such cases, therefore, the medicines of this class should be exhibited by the rectum. An enema, consisting of half a pint of thickish gruel, with two or three drachms of the tincture of assafoetida or of castor or of valerian, and from four to six grains of solid opium well powdered and diffused in it, might in most cases be expected to mitigate the severity, if not altogether to effect the solution of the paroxysm of hysteria. Opium may also be very conveniently employed by friction to the inside of the arms, legs, thighs, etc., with the tincture or with unctuous preparations of it. The practitioner before, however, he determines upon the use of opium, will of course deem it his duty to ascertain, with great care and much judicious attention, the state of the circulation in the head. By reason of the extreme disturbance of the sanguiferous system in severe paroxysms of hysteria, an increased determination of blood to the head is not an unfrequent accompaniment of them. The existence of a congested state of the vessels of the head may be

pretty easily judged of by a more than ordinary absence of consciousness, by a turgid appearance of the countenance, and by a great and unrelaxing development of the external jugular veins. In such cases venesection would present itself to a judicious physician as a most important precautionary measure. The quantity of blood to be abstracted would of course be determined by the special circumstances of the individual case.

Spirituous stimulants of all kinds are to be avoided in the treatment of hysteria during the paroxysm, unless indeed asphyxia might seem to be a prominent symptom of the case; when a moderate quantity of wine or brandy and water might be exhibited with great advantage.

In undertaking the treatment of A CASE OF HYSTERIA of recent accession, it would be one of the practitioner's first objects, if possible, to ascertain the supposed or known cause of the malady. This inquiry would naturally lead him to the knowledge of the previous state of health, and of the physical and moral habits of his patient, and possibly of circumstances essentially connected with the operations of her affections and passions. It is a fact which it is apprehended can scarcely be disputed, that few subjects of hysteria have been known to MENSTRUATE with perfect regularity; and if we may depend upon the results of our own observations and experience, it is equally undeniable, that in a very great majority of cases the hysteric passion is found to owe its origin to some imperfection or disturbance in the performance of the catamenial function. In a case, therefore, of recent accession of hysteria, the physician will determine his attention to the state of that function. Embarrassments of the circulation are almost always very speedy consequences of suppressed menses. How such embarrassments may become an efficient cause of hysteria, it might not be perfectly easy to explain; and it perhaps might be going too far to assert that in all cases of the advent of hysteria, accompanied by disturbances of the catamenial function, the embarrassments alluded to are invariable consequences. There can, however, be no doubt, that in a great majority of cases, derangements of the circulation are positive results, to be looked for and recognised amongst the earliest effects of disturbances of the menstrual function. This view of the case being assumed to be true, or even upon the whole to be entitled to the claim of considerable verisimilitude, it would seem to direct the practitioner's first attentions to the state of the

circulation, and when found embarrassed, or much disturbed and irregular, to the adoption of the earliest and most vigorous measures for its restoration to its natural and healthy balance.

There are two great measures which, if used opportunely, are especially calculated to restore the circulation, when disturbed, as here supposed, to its natural and healthy balance. After having perused the author's statements on the subject of amenorrhea, see p. 230, the reader will scarcely require to be apprised that these are, first, venesection as soon as possible after the application of the cause of suspension of the function; and, secondly, when necessary, the exhibition of a moderate charge of mercury; one sufficient, however, to produce an ascertainable affection of the mouth. When these measures shall have been completed, the patient should have the benefit of a few weeks' residence on the sea-coast, or, what might be still more useful to her, that of a tour in an open carriage, the weather and the season permitting, which should occupy about the same length of time, through some of the more interesting districts of the country. These plans might possibly in some few cases, but not often, require to be followed up by the use of antispasmodics and tonics, viz., by that of asafoetida, castor, musk, or valerian, for the former; and sulphate of copper or of zinc, or preparations of iron, for the latter. The metallic tonics, if prescribed at all, should be exhibited in ample doses. The practitioner will moreover do well to interpose an occasional purgative, whilst at all times the bowels must be kept freely open; no state of things being more directly calculated to favour a relapse of the disease under consideration than a loaded or constipated condition of the bowels.

The degree of activity of treatment in any of the above particulars will of course require to be properly adapted to the age, fulness of habit, constitutional temperament, and other circumstances of the patient; as well as to the variety, amount of violence, or any speciality of cause or complication of the malady. In recent cases, for example, and in those of plethoric subjects characterised by much violence of symptoms, and especially by indications of great determination of blood to the head, the first abstraction of blood should be made on a more than ordinarily ample scale; for then the medical attendant will have for his object not only the speediest possible restoration of the lost balance of the circulation, an object which, on its own account,



the reader will not be disposed to undervalue, but the very important additional one of rescuing his patient from the immediately impending danger of an incurable lesion of cerebral tissue, or of that even of loss of life itself. Moreover, what is more likely to effect a speedy solution of the tremendous spasms which we sometimes observe to affect the respiratory passages, or the immensely tumultuous palpitations of the heart, threatening actual disruption of its parietes, which we see on other occasions, than the taking away of from twenty to five-and-thirty ounces of blood, the quantity to be judiciously graduated according to the effects of its removal? A relief of this kind given to the circulation, followed up by the speedy administration of a full dose of calomel and opium; or, in a case of incapacity to swallow, an equally efficient measure of opium exhibited as an enema, would seldom fail to allay the most furious tempests incident to the paroxysms of this disease.

Neglect of efficiently active practice on the first accession of the disease is no doubt a principal reason why the prognosis in hysteria is, as it actually is, so generally and almost universally unfavourable. The first paroxysm of the disease treated on the common plan of applying alkaline and acidulo-aromatic scents to the nostrils, of bathing the face and temples with vinegar, of restraining the convulsive movements of the patient, which is often done very undexterously and oppressively, and finally of supplying her with an aperient bolus or two, and perhaps with an equal number of packets of draughts made with camphor ammonia and asafoetida, is almost sure, in a very short time, to be followed by another, and that by a third, until, by the repetition of paroxysm after paroxysm, the disease becomes permanently established and chronic. It may indeed happen that the first accession of the complaint may be the effect of a moral cause of powerful influence, and at the same time of a nature not to admit of being removed by drugs and alexipharmics, nor even by the most active measures within the reach or at the command of the physician. Disappointments in love, the deaths of near and dear relatives, sudden losses of property, and other calamitous events in providence, will readily present themselves to the reader as examples of such influences. In cases of this description, however judiciously the first paroxysm may be treated, it is obvious that the original cause continuing to be applied, there will continue to exist for an indefinite period of time a strong

predisposition to repetition of paroxysms, and therefore an unavoidable liability to an eventual establishment of the disease as a chronic malady.

The medical attendant upon being consulted in cases of CHRONIC HYSTERIA will seldom be called upon to determine on the instant upon the whole extent and combinations of his curative measures. He will indeed often find before him a very wide field both for observation and inquiry, and he will therefore do well to examine accurately into all the facts of his case, before he decides upon any system of treatment to be adopted. He would of course have to ascertain the age of his patient, the predominant peculiarity of her temperament, the state of her sexual functions, and how far any disturbances of those functions should be considered as the efficient cause of her malady; then any consequent lesions of functions not primarily implicated in the malady, any changes of character which the disorder may have sustained during its progress, its present standing or duration, and all its actual, and also its probably ulterior, complications.

The disturbances incident to this very remarkable disease seldom fail to derange very importantly the menstrual function, and we have already seen how much derangements of that function are calculated to disturb the operations of the chylopoietic organs. Hence we almost always observe that hysterical females are more than ordinarily the subjects of flatulencies, noisy movements, constipation, and other morbid conditions of the gastric organs. In the midst of these complications of functional derangements, it will be a duty of some difficulty for the physician to determine which functional system he shall make the object of his first attempt to rectify. As a general rule, perhaps, the gastric functions would present themselves to his first consideration. But this part of the subject has been already sufficiently considered under the article Amenorrhœa, to which therefore the reader is referred. In short, the treatment of amenorrhœa will be found in many important respects to correspond in its indications with those of the practice proper to be adopted in chronic hysteria.

In many cases of the hysteric passion, moral management, and those general considerations of regimen to which our ingenious neighbours the French have of late years attached the attributive epithet Hygeian, will embrace a very large proportion of the objects to be attended to. It seldom happens that the more

violent disappointments and greater bereavements of life, can under any circumstances be speedily remedied ; it being almost always impossible to replace the objects of such disappointments and bereavements by any others of equal value either to the understanding or the heart. In such cases, therefore, the professional philanthropist will have to direct his attention to the best modes and sources of furnishing his fair patient with such useful and interesting occupations as her means and inclinations may enable him most advantageously to suggest. Temporary change of residence, travelling, visiting attached and much-respected friends, and extension of intercourse with cheerful and virtuous society, a constant succession of agreeable and useful employments, and above all, daily exercise, preferably either on foot or on horseback in the open air, will be found to furnish him with a pretty ample choice of materials for his moral prescriptions.

OF THE COMPLICATIONS OF HYSTERIA.—The more formidable COMPLICATIONS OF HYSTERIA are such as present themselves in combination with functionally-disordered conditions of the cerebral and nervous system, as also with those of the uterine, gastric, pulmonary, and sanguiferous systems. The operations of these several systems of action, even in health, are mutually so dependent and associated, that it is exceedingly difficult to detach the disordered functions of any one of them from those of the others for the purpose of a separate consideration. Of the disturbances of the cerebral and nervous system in particular, it may be observed, that they form so important a part of the malady, as to seem to constitute its very essence. So important indeed are the lesions of this system as attributes of hysteria, that several of the most eminent pathologists of modern times have identified them with the very source and efficient cause of the disease, and have accordingly applied to the supposed morbid results, nosological designations literally expressive of the identity in question. M. Georget, *Malad. Nerv.*, tom. ii. p. 262. But independently of the ordinary convulsions to which these remarks more immediately refer, there are also morbid affections of nervous tissues which present themselves only occasionally and accessorially in cases of hysteria, but which in those cases constitute no small share of the patient's distress. As examples of such special affections, we may instance the *clavus hystericus*, the neuralgic pain of the left side, and other agonizing pains of detached local-



ities supposed to be of nervous tissues in different parts of the body. It is more especially to relieve and to remove those supposed affections of the nervous system that the greater number of modern practitioners have considered the class of antispasmodic medicines as being properly indicated in cases of hysteria. Cupping and blistering have occasionally been resorted to with great advantage for the alleviation of neuralgic pains of detached parts of the body. Opiate and camphorated embrocations have also been usefully resorted to in such cases. In one case of the same description the author has very recently been much gratified with the effects of large doses of carbonate of iron, as he has been in many former cases of neuralgic affections not connected with this disease. But of all the morbid functions of the nervous system, the most important, in a practical point of view, in connexion with our present inquiry, is the specially-epileptic form which the convulsions of hysteria sometimes assume. Writers on these subjects have supplied us with examples of the lapse of severe and maltreated cases of this form of hysteria into actual and even fatal epilepsy. These results are to be guarded against by the occasional abstraction of blood from vessels communicating with those of the head. The most convenient mode of accomplishing this object, whenever it might be deemed useful to have recourse to it in the absence of a paroxysm, would be that of making an incision into one of the external jugular veins. During the presence of a fit, the closure of the orifice might be attended with some difficulty. In large towns where good cupping is practised, the same object would be equally conveniently attained by cupping from one or both of the temples, or from parts immediately behind the ears. Bleeding from the temporal arteries succeeds in only few hands.

Patients subject to this form of disease should always go with very little hair, and have their heads only lightly clad. They should be exceedingly regular in all their habits, guard themselves against causes of violent mental emotions and passions, abstain from indulging in full eating and drinking, sleep in large rooms with their heads elevated, and only for about six hours and a half in the four-and-twenty, and accustom themselves to the habit of wearing yarn socks or stockings and thick shoes.

In consideration of statements already made and more than once repeated in the present work, on the treatment of gastrointestinal derangements, the author will not here trouble his

readers with any further remarks on that subject. In respect to cases of complicated pulmonary derangements, whether of function or of structure, it would perhaps be best upon the whole, at least as a general rule, to consider the pulmonary affection as of the first importance in the treatment. This remark is intended to be applied to such cases, more especially, as have been denominated hysterical phthisis, and hysterical asthma; but it may also be properly enough extended to those of some organs immediately contiguous to those of the respiratory system, as hysterical hydrophobia, hysterical dysphagia, hysterical hiccup, etc. Immediately resulting from the spasmodic contractions which constitute the most prominent attribute of hysteria, are the alarming congestions and consequent tumultuary movements of the great central organ of the circulation, the heart. The heart itself consists essentially of muscular tissue, and therefore, like other muscular structures of the body, is liable to be affected by spasmodic rigidities and contractions; but during paroxysms of hysteria it is moreover subject to be unequally excited by its appropriate stimulus the blood, or rather to be altogether deprived of that natural stimulus on the one side, whilst enormously overweighted, almost absolutely overwhelmed, by excessive quantities of it on the other. Hence the prodigious palpitations of that organ, accompanied in many cases by much intense pain, and the most pitiable expression of anxiety, indicative as it were of the distressing laboriousness of nature's efforts to escape from the horrors of an all but mortal struggle.

The obvious indications in cases of this kind are, first to relieve the more immediately pressing symptoms by bleeding, and then, as soon as possible afterwards, to restore the circulation to its natural and just balance, by the removal of the spasms presumed to be the cause of its inequality, which is to be effected by the exhibition of ample measures of opium, either by the mouth or by the rectum, as the particular case may indicate. In chronic cases, and under the circumstances of frequently-repeated paroxysms, it is not here to be understood that bleedings in any quantities are upon all occasions to be resorted to. There are many patients so much reduced by the long duration and complications of the disease, that such practice could not be for a moment entertained. Under those circumstances we therefore proceed to the immediate adoption of the remaining great measure to be had recourse to, that of effecting the solution

of the spasms by opium and its usual adjuvants, included within the class of medicines called antispasmodics. To sustain the general powers of the system, and to prevent as much as possible its lapse into a state of great feebleness and consequent derangement of some of its more important functions, we may, subsequently to the adoption of the above measures, be required to have recourse to the use of tonic remedies, and to recommend the daily use of friction with the hand or flesh-brush, that of regular exercise in the open air, much attention to diet, and a habitual observance of all such rules of regimen and of personal management as experience has taught us to value as the physician's most efficient auxiliaries. In cachectic complications of the disease, the practitioner must have recourse to the use of such remedies as may be especially indicated by the nature of the complications. Cachectic conditions of the system must be considered as the sequels of previous and more active forms of the diseases of which they are the results. In the majority of such cases small alterative doses of mercury, alternated with tonic medicines judiciously combined with the general restorative measures just enumerated, will form the practitioner's most useful remedies. "It should not be forgotten that the different parts of what is called an alterative treatment often induce most important changes by slow operations, seemingly effected in the actions or conditions of the nervous or vascular systems, or wrought upon less obvious sources of continued malady, existing perhaps in the secretory processes." The following works may be consulted for further information:—Conolly on Hysteria, *Cyclopædia of Practical Medicine*, Part xi. p. 586. Astruc, *Traité des Maladies des Femmes*, Paris, 1761, tom. iv. p. 54. Göez, Adam Julius, *Beytrag zur Geschichte von den Hysterischen Krankheiten*, Meinungen, 1771. Caldwell, *Dissertatio de Hysteria*, Edinburg. 1780. Buechner, Andr. Elias, *Pathologia et Therapeia Passionis Hystericæ*, Erfurti, 1739, et *Dissertatio de Clavo Hysterico*, Halle, 1751. Raulin, Joseph, *Traité des Affections Vaporeuses du Sexe*, Paris, 1758. Wilson Andr. *Medical Researches on the Nature and Origin of Hysteria*, Lond. 1776. Purcell, John, on Vapours and Hysteric Fits, Lond. 1701. Rivierii Lazar. *Observat. Medic.*, etc. cent. i. No. 32, cent. ii. No. 11, 65. 69. cent. iii. No. 83. Hoffman Fred. *Opera omnia*, Genev. 1740, tom. iii. sect. i. cap. v. p. 50. Neenon *Consult. et Respons. Medic.* p. 10. 207. 233. Sennert, Daniel,



Opera. Lugdun. Batav. tom. iii. lib. iv. sect. iii. cap. iv. p. 85, et sequent. Thomæ Willis Opera omnia, cap. x. de Morb. Convulsiv. p. 68, et sequent. de Passionibus Hystericis. Whytt's Works, Observ. on Nervous Diseases, p. 525—713. Sauvages, Nosolog. Methodic. Amstelodam. 1768, tom. i. p. 586, et sequent. Morgagni de Sedib. et Caus. Morb. Lugdun. Batav. 1767, epist. xlv. art. 17—20. M. Louyer Villermay, Traité des Maladies Nerveuses, Paris, 1816, tom. i. p. 1—216. Pomme, Traité des Affections Vaporeuses, à Lyon, 1765. Heilmann, Momenta quædam circa Affectum Hystericum, Vitterberg, 1800. Manning Heinrich, Neber die Mutterbeschwerung, Vindobon. 1790. Georget, Recherches sur les Maladies Nerveuses, Paris, 1821, p. 238—302.

OF NYMPHOMANIA.—Uteromania, metromania, hystermania, eretomania, andromania, gynaiomania, furor uterinus, melancholia uterina, tentigo venerea, mutterwahosucht, mantollheit, mutterwuth, are for the most part well known synonyms of nymphomania. This term in common with its synonyms has been employed to express a morbidly intense venereal desire, combined with aberration of the understanding. This disease must have existed from the earliest times, although the more celebrated physicians of antiquity, viz., Hippocrates, Galen, and Celsus, have made no distinct mention of it in their writings. We have evidence, however, that it was well known to Soranus, a Greek physician, and to his countryman Ætius, both of whom practised medicine at Rome during the earlier reigns of the empire. Nymphomania appears to be essentially a morbid affection of some part of the uterine system; the seat of the diseased passion which it most prominently exhibits, being either a part or the whole of the female genital system. Sauvages has associated this disease in his system of nosography, with vesanious affections of the mind. Franc. B. de Sauvages. Nosolog. Methodic. tom. ii. p. 226.

Furor uterinus may be described as an endemic disease, almost exclusively of warm climates; insomuch, indeed, that in the temperate climate of this country, examples of it are exceedingly rarely to be met with.

With very rare exceptions, it would moreover appear to be a disease of the ADULT female; and when any exceptions have presented themselves, they have occurred in connexion with a precocious development of the organs in which the sexual passion is

presumed to inhere. *Dict. des Sciences Médic.* tom. xxxvi. p. 565. It has, moreover, most frequently presented itself during the earlier years of what some foreign writers have called the sexual life of women; although in some few cases it has been encountered, if we may depend upon the accuracy of one or two writers on the subject, at ages very considerably more advanced. "The author of this article," observes M. Fournier, art. *FEMME*, *Dict. des Sciences Médicales*, vol. xiv. p. 593, "has attended professionally a lady aged seventy years, who was enormously corpulent, and who suffered greatly from an irreducible omphalos, but who at the same time was the subject of the most disgusting furor uterinus. Prudent and modest until she arrived at the age of sixty-six, she then all of a sudden lost all sense of sexual chastity. The offer of her fortune was one of the last ridiculous means of seduction she made use of, whilst she had recourse to the most obscene practices in order to appease the ferocity of her desires." There are, moreover, examples of women who had felt so little interest in the privileges of conubial life as actually, during the earlier years of their marriage, to have been averse to the approaches of their husbands, but who subsequently became the victims of the most outrageous sexual desires. Hellwich records a case of this kind, which actually terminated in fatal furor uterinus. Hellwig. *Johan. Observ. Physic. Medic.* cent. 11, p. 308, obs. 148.

It has been reported by writers more conversant with the phenomena of this malady than the practitioners of this country can be expected to be, that the nymphomania of the female is a disease of much more frequent occurrence than is satyriasis, the corresponding affection of the male subject. This presumed fact has been attempted to be explained by a reference to certain peculiarities of locality and structural connexions of the female genitals, deemed more favourable to the development of the sexual passions, than they have presumed those of the male to be in respect to the same particulars. Others have imputed it to the more sedentary and retired habits of women, and to the severe obligations of celibacy and continence which under certain circumstances the laws and usages of society have almost exclusively imposed upon them. It has moreover been presumed, that the more mobile and susceptible temperaments of women must especially subject them to the liability of a greater predisposition to tumultuous movements of their passions than the

other sex, as well as the influence of the periodical changes incident to one of the most important and characteristic functions of the human female.

It does not appear very certain, nor can it indeed be a matter of much importance, whether the fact itself thus gratuitously contended for, or any one of its explanations, can be unhesitatingly accepted as having been founded on the basis of a sufficiently extended induction.

It has been already stated, that women are liable to uterine furor during the whole period of their uterine life; but it has been observed, that they are much more frequently the subjects of it at the two principal epochs of their sexual existence, viz. that of the age of puberty for the first, and that of their constitutional climacteric, the period of the cessation of the menses, for the second. Inasmuch as not many women under any circumstances, whether of age or climate, ever become the victims of nymphomania, it has been attempted to connect the predisposition to it with certain strongly-marked temperaments and striking peculiarities of organization. Hence, its ascription especially to a predominance of what has been called the nervous temperament, of which the principal indications are strongly-developed muscles; a sparing supply of cellular tissue; hair in ample quantity, and most frequently of a dark and even of a jet-black colour on all the parts of the body usually furnished with that covering; eyes of the same colour, and generally very large and expressive; a mobile and imposing physiognomy; the sexual attributes strongly marked in respect to the position and development of the mammæ; the contour of the hips, indicative of a pelvis of the best form well-proportioned to other parts of the figure; and finally, a system of extremities well calculated by their symmetry and power to give effect to the other attributes of a being thus remarkably distinguished. With the above characteristic properties have been added certain coincident forms of the mouth and countenance, such as a wide mouth, ruddy and thickish lips, white, sound, and well-formed teeth, &c. In the above enumeration has been omitted, for the purpose of a more particular notice, one constant accompaniment of the temperament which has been represented to characterise the predisposition to the disease, viz. an unusual susceptibility of the skin to tettery affections. *Jour. Général de Med. Paris*, tom. 64, p. 72.



Nymphomania has by some writers been attributed to the presence of worms in the rectum. One of the more frequent causes of pruritus of the female genitals, is, in point of fact, the presence of ascarides in that intestine. The irritation so produced is often intolerably annoying; whilst the action, naturally resorted to for its relief, may well be supposed not incompetent to add to the existing phlogosis; the already irritated tissues being peculiarly and even functionally susceptible of pleasurable excitement from friction. How far the pruritus, here supposed, may at any time have been more directly produced by lodgments of ascarides among the folds of the vagina, or of those of the external genitals themselves, as has been by some writers maintained (*Dict. des Sciences Médic.* vol. xxxvi. p. 571), the author does not feel himself prepared to state, having never met with an example of that kind in his own practice.

Cases are recorded of nymphomania having been occasioned by sympathy with irritated states of the rectum, consequent upon the introduction of stimulant substances into that organ for curative and possibly for other not equally legitimate purposes. Catherine B., aged fifty-eight, of a sanguineous and highly irascible temperament, became the subject, about the period of the cessation of the menses, of an herpetic eruption, together with a very troublesome pruritus of the external generative organs. Soon after its first appearance, its symptoms yielded to a regulated regimen and suitable medicines; but in about two years afterwards they again returned. The patient, on that occasion, consulted an herbalist, who engaged to effect a radical cure of the complaint. For that purpose, he made use of injections consisting of certain preparations of drastic plants, such as of the hedge hyssop and asarum. The two first of these enemata produced copious evacuations. That effect was, however, accompanied by an exceedingly troublesome itching of the genitals. The third excited an insatiable desire for sexual intercourse, and was followed by very profuse evacuations, with faintings. A fourth produced another morbid affection: DEGLUTITION BECAME IMPOSSIBLE, AND THE APPROACH OF FLUIDS SEEMED TO HAVE THE EFFECT OF CLOSING UP THE THROAT, AND OF EXCITING A SENSE OF SUFFOCATION; the patient, in the mean time, complaining of a burning heat from the throat to the epigastrium. The horror of liquids became more and more distressing, until at length the very sight of them caused convulsions. During the subsequent night, the

patient experienced several paroxysms of phrenitic delirium. On the third day she was observed to discharge great quantities of saliva; the pulse was small and intermittent; the extremities became cold, and after a lapse of a few hours she expired. Louyer Villermay, *Art. Nymphomanie*, *Diet. des Sciences Médic.* p. 573.

The reader will observe that the patient, in the above case, besides having been made the victim of a most obstinate perseverance in the use of dangerously irritating topicals, was previously the subject of AN HERPETIC ERUPTION, which was attended by a very troublesome pruritus of the external genitals. It is well known that lepra and elephântiasis have often been attended by strong venereal desires and priapisms in the male subject, as also, though perhaps less frequently, by nymphomania in the female.

Certain articles of diet, as well as several varieties of condiments used in cookery, have had the reputation of possessing the power of rousing or of increasing the activity of the genital organs; of accelerating the circulation in those parts, and consequently of inordinately exciting the appetite for venereal gratification. In this list, wines taken at a premature age or in excessive quantities, spirits, liqueurs, coffee, some varieties of aromatics, etc., have found a place; as also have mushrooms, pig-nuts, preparations of savin, phosphorus, etc. It scarcely need be added that cantharides, both in powder and tincture, have been supposed to possess a peculiar influence in this respect on the uterine system. Some of these latter substances have accordingly been administered for the purpose of exciting the uterine system, both by the stomach and by the rectum in a variety of forms; as also in some cases by the vagina, in the several forms of lotions, injections, and pessaries. *Histoire de la Chirurgie*, par M. Peyrilhe, vol. ii. *Lond. Medic. Journal*, 1782, vol. iii. p. 343.

Among the causes of irritation supposed competent to produce nymphomania, more immediately affecting the uterus itself, it may seem proper just to notice the asserted presence of ascarides and other vermiform entities within the actual cavity of that organ. *Ephem. Germanic. dec. ii. an. 5*, *Append.* 1686, obs. 66. *De furore uterino a vermibus: Auctore D. Francisco Paulino.*

It has pleased some writers to specify among the causes of the malady under consideration, certain derangements and disturb-

ances of one or more of the secerning systems; such as a sudden suppression of the transpiration by the skin, or of the menstrual function, or even of accustomed but unusual evacuations, as those from hæmorrhoids or from wounds or issues of long standing. Without contending for the truth of so general and sweeping a statement to the full extent of what it predicates, there can be no doubt of its correctness so far as it applies to disturbances of the catamenial function.

In the greater number of the cases of nymphomania complicated with hysteria, which we find recorded in the German Ephemerides, and in other authentic registers of medical literature, we may indeed observe that the catamenial function, as in the case just quoted, was either totally suspended or greatly disturbed in its movements; so that both maladies might reasonably, in such cases, be the common results of embarrassments and irregularities of that important function.

Added to the several causes of nymphomania above enumerated, it is scarcely possible not to presume that some females are originally and constitutionally, not to say even structurally, more liable to become the subjects of this malady than other women, and cases are recorded which fully confirm this view. See 4to Edit. pp. 453 et seq.

It is well known that women of previously perfectly modest lives and conversation, become sometimes the subjects of strong venereal propensities, which they do not always find it possible to conceal, in consequence and as an effect of morbid actions of one or more of the constituent organs of the genital system. In some of the dissections of subjects who had perished the victims of this disease, the strongest marks of inflammation and even of sphacelation of the vagina and of the inferior portions of the uterus have unequivocally presented themselves; whilst in others, diseased states of a more chronic character have been found to affect the uterus itself and its abdominal appendages.

In the greater number of cases of nymphomania, complicated with chlorotic melancholia and hysteria, so far as any attempts have hitherto been made to illustrate them by pathological anatomy, the uterus itself, or its abdominal appendages, or both, have been found structurally diseased. Stephan. Blancard, Collect. Physico. Medic. obs. 28, p. 1. Carol. Gesner. Act. Physic. et Medic. vol. vii. obs. 20. Ephem. Germanic. cent. iii. et vii. Auctore Fried. Lochner. Christ. Helwich, Ephem. Germ. cent. iii. et xi.



It should however be observed, that structurally diseased conditions of organs presumed to be principally concerned in the phenomena of diseases of long standing, cannot in all cases be admitted to be causes, inasmuch as they might sometimes be almost absolutely proved to be effects of such diseases.

In the greater number of cases, we may presume nymphomania to be proximately the result of an increment of action or of more than ordinary excitation of the constituent tissues of the sexual organs. In what such increment of action may consist, and whether it must essentially be a morbid state of nerves or of blood-vessels or of both; and what amount of such excess of action may be required for the production of the effect in any given case, are propositions which our present state of knowledge does not enable us satisfactorily to solve. It may be assumed as a fact, that in all acute cases ending fatally in the course of a few days or weeks, evidences of intense inflammation of the genitals have been found after death; whereas also in more secondary and complicated cases, where the malady has arisen more gradually and the fatal event has been longer retarded, the appearances on dissection have not been devoid of striking evidences of the presence of inflammation. Nevertheless inflammation, whether of an acute or chronic character, whether terminating quickly in fatal sphacelus, or eventually but equally fatally in more extensive chronic ulcerations of the tissues implicated, cannot be considered essentially and per se as the proximate cause of nymphomania, otherwise nymphomania would be a disease of daily occurrence in every country. Inflammation of the organs in question under a considerable variety of forms is indeed a morbid condition of them of constant occurrence; but nymphomania is a malady which happily is so seldom met with, that even now there are comparatively not many authentic cases of it on record. It would seem therefore to follow that, inasmuch as we have no evidence of its having ever existed without inflammation of the sexual organs, whilst nevertheless these organs are liable to the most dangerous and fatal inflammations without at the same time becoming the seat of this particular phlogosis, nymphomania must be the effect of some peculiar kind of inflammation, a form of inflammation *sui generis* of most rare occurrence, of which we know little or nothing beyond this extraordinary effect, or that it must be the result of one or more of the common forms of inflammation plus something else.

Hence it may at all events be safely inferred that the moral extravagances incident to the presence of the malady under consideration are at least accompaniments, and probably also effects, of a certain phlogosed condition of one or more of the organs which constitute the genital system. But the physical condition here supposed has itself not unfrequently resulted from the influence of a SPECIFIC MORAL CAUSE; viz. that of love, and love's misfortunes and diseased excesses: a cause in fact so intimately connected with the appetencies of the genital system, as sometimes, although erroneously, to have been actually confounded with them. The connexion here presumed between the sentiment and the passion is indeed notorious and undeniable; and there can be no doubt of the competency of the sentiment, when morbidly and extravagantly entertained, to produce diseased states of the passion and of its appropriate organs. So much importance has been ascribed by some very excellent writers to the influence of love's waking dreams and distractions in the production of nymphomania, that they have been induced to represent it as almost the only cause and as forming the first stage, and therefore no inconsiderable part, of that disease itself.

Some foreign writers have greatly insisted on the influence of forced and protracted celibacy, and of the absence of the means and opportunities of sexual intercourse under whatever circumstances, as a prolific cause of nymphomania. This doctrine appears to the author not to be sufficiently sustained by evidence from facts. It seems necessary that accessions to the circumstances of nonenjoyment of the opportunities referred to, there must also exist, either continuously and constantly, a state of great predisposition to the disease from physical or moral temperament, or that there must be presented adventitiously the influence of some sudden disappointment either of the sentiment or passion more immediately interested in the disturbances incident to the malady, or some eventful disruption of long and fondly-cherished associations, less obviously, perhaps, but not less necessarily productive of similar disturbances. There are no facts, as far as the author is aware of, to prove that any of the vestal virgins of antiquity or any of the Christian vestals of modern nunneries, although not unfrequently quoted as subjects of hysteria, ever became victims of nymphomania. Again, the very rare occurrence of nymphomania can scarcely be deemed to consist with the fact, that in the more peopled and civilised

countries of the world, thousands and tens of thousands of the fair sex are condemned to perpetual celibacy.

Another class of writers, with more plausibility, but at the same time not without some disposition to exaggeration, have represented nymphomania as a disease of the genital system, resulting from an unrestrained licentiousness and an unlimited indulgence of the sexual passion, including all sorts of depraved practices by which its appetencies have ever been gratified. The vices to which the latter part of this statement is especially intended to apply, were at one time almost endemic at Lesbos and other Greek islands, as well as in ancient Egypt, antecedently to the period alluded to, and subsequently to it among the Romans; and yet there scarcely exist any positive records of nymphomania having been recognised as effects of them. A similar remark may be made in reference to all kinds of sexual vices, early and premature debaucheries of which even the names should not be known nor repeated, but which were practised with publicity and without disgrace in almost all the more southern countries of Europe before the introduction of Christianity.

OF THE TREATMENT OF NYMPHOMANIA.—The treatment of the malady under consideration, like the subject itself, pretty obviously resolves itself into two principal branches, viz. that of the morbid sentiment, the diseased action being then at least primarily one of the affections: and secondly, that of the sexual passion.

With respect to the former, much of its most efficient treatment must consist in judicious moral management. One of the earliest and most dangerous effects of sudden disappointments in love, is an almost total abolition of the power of sleeping. Consequent upon this result is soon established in the system a constitutional excitement, amounting to a rapidly consuming fever. The patient soon loses her appetite, and becomes in a degree emaciated almost from the date of the first infliction of her great moral shock. The functions of the womb become speedily implicated in the general commotion, and soon after, if not indeed before, those of the understanding.

The more practical points of the treatment which would remain for consideration would therefore be to subdue or to mitigate the turbulent effects produced by the feelings, and by want of sleep on the cerebral system. The most immediate and



effectual mode of accomplishing this object would consist in the exhibition of adequate doses of opium. The quantity should of course be duly proportioned to the date of its first exhibition, and to some other circumstances which would readily suggest themselves to an intelligent physician. Under the circumstances we have here to deal with, a quantity short of two grains and a half or three grains of solid opium, or its equivalent in any other form, as for instance in that of the muriate or acetate of morphia, or that of the black drop, or Battley's liquor opii sedativi, should not for one moment be thought of; whilst at the same time it might be quite necessary to follow up any partial advantage obtained from the first dose by the subsequent occasional exhibition of smaller measures, as a third or a fourth of the original quantity every four or five hours. In this way the patient might perhaps enjoy a few hours' sound sleep which at a recent period of her case would be a matter of prodigious utility to her. On the next day the tempest of her affections might be expected to have abated something of its violence; whilst also the events of the new day would probably furnish both motives and opportunities for new measures. In most cases of preternatural excitement of the cerebral system, it should be made a consideration of great practical moment to determine how far the abstraction of from fifteen to twenty, or even thirty ounces of blood, might not with propriety precede the exhibition of opium. In a great proportion of cases there would be no doubt as to the expediency, not to say the indispensable necessity, of such practice; inasmuch as a full dose of opium without that precaution might only serve to increase the disposition to vigilance.

The experienced reader need not be reminded that full doses of opium have a tendency to produce a disposition to sickness and vomiting, or rather to easy and repeated vomitings without much sickness, on the day subsequent to its exhibition. This would be a matter of trifling consequence, and should form no objection to its use. As a good combination with opium, a pretty ample dose of calomel, or of blue pill, might in many cases be very advantageously exhibited. In those cases especially in which preparations of opium had been known to constipate, the combination of an opiate with a mercurial preparation should be considered as quite proper and necessary. After the subduction or mitigation of the first acute symptoms, time contributing

concurrently its silent and soothing influence towards mitigating in some small degree at least the moral part of the evil, the professional attendant will speedily have to address his measures to the management of diverse chronic forms which the disease may assume, and ulteriorly in the sequel, to its morbid results on the constitution and on the sexual system.

If by the strong measures to be adopted in the first instance, and perhaps to be repeated in the early progress of the malady, an explosion of mental aberration shall not have been prevented, it will soon become a question of some moment in families, how far it might be advisable to give the unhappy patient the benefit of a temporary seclusion from society. Such a measure, in most cases, might undoubtedly be expected to have the happiest effects on the issues of the case. The erotic malady is here of course presumed to have already assumed the form of an absolute derangement of the understanding; and on a province of professional practice, so peculiar in some cases and so extended and multifarious in others, we need not at present enter.

In the event of other varieties of changes in the progress of the disease, the practitioner will necessarily be guided by general principles. Whenever it shall be found practicable, *and not obviously incompatible with the future happiness of the subject of his case*, he should use his best exertions to effect such reconciliations and changes of resolutions as may enable the rejected lover to return with honour to a renewal of his engagements. That accomplished, he would probably soon after have the pleasure of surrendering his case into better hands.

Should the first and more acute symptoms gradually subside into a state of great dejectedness and melancholy, accompanied or likely soon to become complicated with suppressed menstruation and chlorosis, the best treatment under that form and stage of the malady would be for the most part to advise a change of scene, and partially of society, travelling, etc.; the use of suitable exercise in the open air, a judicious management of the organs and function of digestion, the exhibition in the first instance of mild tonics, and afterwards of such as might be expected to act more powerfully. Tepid bathing, and especially salt-water bathing, at first also tepid but afterwards in the open sea, would probably very importantly contribute to improve the patient's tone of actions, both of body and of mind. Her diet should be mild and nutritious, and such as her appetite and likings, other

things being equal, might enable her to partake of; and it should be varied, provided always it were wholesome and well adapted to the case, as often as might be thought desirable.

In undertaking the TREATMENT OF THE MORBID PASSION more immediately concerned in this inquiry, the practitioner's indications will require to be founded upon a precise knowledge of the patient's physical and moral history, and more especially on that of the cause or of any series or combination of causes, which may be known or suspected to have produced the disease. But inasmuch as an adequately comprehensive knowledge of all the circumstances of cases of nymphomania can seldom be obtained during a first or even a second visit, the physician will often find himself under the necessity of confining his first indication to the subduction of the more obvious and tempestuous effects incident to the malady; which indeed will generally present themselves very forcibly upon his attention under the two principal forms of an inordinate constitutional excitement, and of the local phlogosis especially characteristic of the disease.

To meet the important indication here proposed, an ample general abstraction of blood will naturally suggest itself to a judicious practitioner as a first and indispensable measure.

If the disease be recent, the first general bleeding should be such as to produce full fainting; and it should be afterwards speedily followed up by the application of leeches to the genitals. When it shall be practicable to convey these auxiliary operators high up into the vagina, and as far as the orifice of the uterus, a number of them not exceeding eight or ten might suffice for one time; see p. 232: but if that could not be done, and it were only practicable to apply them to the external genital surfaces, the application at least of twenty would be required in order to obtain an equal amount of depletion from the uterine system.

On the removal of the leeches the patient should be placed in a tepid or subtepid hip-bath; where she might remain with great advantage for several hours, the temperature of the water to be duly proportioned to that of the central parts of her person and to the excited state of her circulation. This part of the treatment, whilst it should promote a continuous bleeding from the leech wounds, would also most probably be followed by much diminution of excitement of the general vascular system, and by a corresponding reduction of the morbid fulness and phlogosis of that of the uterus and its appendages.



Whilst the above important services were being performed, the practitioner might usefully determine his attention to the treatment of the vesanious part of his case. He would probably find the temperature of the head (we are now of course supposing a recent case) to exceed that of the human body in a healthy state by several degrees. To effect the earliest possible reduction of this morbid development of heat in the head, could not fail to present itself to his mind as an object of scarcely secondary importance. This object would have to be obtained, not by further bleeding, which could seldom be either necessary or proper; nor by the application of blisters to the head, which most probably would exasperate the cerebral excitement already existing; but by the exposure of the naked scalp, the hair having been previously shaven off, to the continuous contact of an uniformly cold medium. If we suppose the patient upon being taken out of her bath to be immediately conveyed to bed, the most effectual method of reducing the temperature of the head would be to place it on an elastic pillow made with a bullock's bladder, half charged with iced water or any other very cold fluid; the atmospheric air in the remainder of the bladder being carefully pressed out, the extremity of its neck properly secured, and the whole enclosed within a dry diaper napkin. If then the patient be made to lie on her back, the occipital part of her head will sink towards the centre of her cold pillow, so as to be exposed to a rapid reduction of its temperature.

The above measures having been duly accomplished, the bowels should be freely emptied by a full dose of calomel and jalap, or in case of obstinate constipation, by half a drop or even a drop of croton oil.

It would be the practitioner's remaining indication on the sequel of the same day, viz. the first day of his attendance, to endeavour to conciliate sleep by the exhibition of a powerful opiate. See p. 342.

On the second and some of the succeeding days of the disease it would probably become necessary to have recourse to a repetition of several of the measures now recommended for the first day's adoption. The local bleeding e. g. might be required to be repeated, as might also the use of the subtepid hip-bath.

To ensure a successful application of leeches, whether to the orifice of the uterus, or to the external genitals, it would almost

always be necessary to place the patient under so much personal restraint as should prevent the possibility of her changing her position, or making use of her hands, whilst the duty was performing. The use of the strait-waistcoat has also been especially recommended in cases of this kind, to keep the hands from being improperly used in reference to certain propensities and peculiar importunities of the disease. Whilst leeches were being applied, the opportunity should be made available for examining with great accuracy the condition of the parts affected in order to ascertain first the amount and extent of their inflammation; and secondly, the kind, quantity, and if possible the precise source, of any morbid secretions which might be furnished by the phlogosed organs. If immediately, on the falling or removal of the leeches, it should be inconvenient or otherwise unadvisable to have recourse to a repetition of the subtepid bath, as recommended among the items of the first day's practice, a very useful substitute might be found in the injection of full and repeated charges of cold water into the vagina, together with an occasional injection of the same fluid into the rectum. In cases of extreme phlogosis it might be prudent to attempt a gradual reduction of the heat of the parts by using first, tepid water to them, and then successively the same fluid in gradually reduced degrees of temperature. In cases of great offensiveness of the discharges, it might be exceedingly useful to syringe the affected surfaces two or three times daily with a moderately stimulant injection, consisting of equal quantities of decoction of bark, camphor mixture, and port wine. Under the more ordinary forms of inflammation of the same tissues, a solution of nitrate of silver in water, in the proportion of eight or ten grains of the salt to a pint of water, would furnish a better application. A reduction of the temperature of the parts within the pelvis has sometimes been attempted by a constant wearing and frequent changes of napkins charged with cold and evaporating fluids. It would appear doubtful whether and for how long a time the use of these and similar applications should be persisted in subsequently to the subsidence of the disease into a chronic form. The author knows but of one case which he can appeal to in illustration of the point in question. The reader will find the entire history, which is given at great length and fraught with intense interest, recorded in a Dissertation upon the subject of *Furor Uterinus*, by M. Bienville, and translated into our language by Edward Sloane

Wilmot, p. 129, Lond. 1775. See also the 4th Edition of the work, pp. 475 et seq.

Among the earlier and more important duties to be duly attended to in the management of this most formidable disease, is that of ascertaining the fact of the existence, and if possible to effect the removal, or at all events the speedy diminution of the influence, of any circumstances presumed to operate as predisponent causes to it. From some of the cases which have been recorded, it would appear probable that a strong predisposition to the malady might almost itself suffice to originate its peculiar movements; the concurrence under such circumstances, if any, of very feeble occasional causes being alone required to produce it. Storch von den Krankheiten der Wieber, Bd. ij. p. 113, 206, 281, 355. Heisterbergk, Dissert. de Virgine Nymphomania Laborante, p. 3. Joerg. von den Krank. des Menschl. Wieber, § 214. Astruc, Traité des Maladies des Femmes, tom. ii. p. 351.

The morbidic predisposition here supposed is perhaps in most cases to be identified with a peculiarly active state of the sexual passion, and probably in many with a more than ordinary development of the sexual organs. Such activity may be either an original condition of the organs, or subsequently superinduced by various diseases either of those parts themselves, or of other organs sympathetically competent to disturb their actions. Hence the great importance in practice of acquainting ourselves with the proximately predisponent conditions, and the very first movements of the disease. When therefore an occasional cause of this malady is not very apparent, and when none of any importance is known to exist, the medical attendant will have to determine his special attention to the discovery of any circumstances which might warrant the belief, or even the presumption of a strong predisposition to it. We have already seen that the sentiment of love and the sexual passion are mutually and intimately dependent on each other. It is equally true, that taken together they are the causes of by far the greater number of cases of nymphomania which are met with in the practice; whilst it is also true that a very large proportion of the diseases of the latter are derived from a more than ordinary activity of the former. Th. Bartholin. Epist. Medic. cent. iii. p. 147. Reilus' Fieberlehre, Bd. i. p. 11. Bernstein's Prakt. Hand. der Geburtsch. p. 196. Leibmann. de Furore, p. 20. Primeros. de



Morb. Mulier. lib. iii. cap. 9. Stegmann in Ephemerid. Germanic. dec. iii. an. 1. obs. 13. The principal application of this important fact is the strong inducement which it furnishes to the physician to inquire into the preceding history of his patient, and to ascertain by accurate professional examination the existence and amount of any peculiar states and changes of condition of the genital organs likely to supervene upon certain actions and habits predisponent to the disease which he has undertaken to treat. He will thus acquire a precise knowledge of the pathological facts of his case, and consequently make himself practically acquainted with so many important circumstances of which he otherwise would be ignorant, as it is presumed would most essentially qualify him to assume the very responsible duties of his engagement with proper confidence; and to discharge its obligations with adequate vigour, a sound discretion, and a probable eventual efficiency of result.

But the practical inquiries here recommended should have for their objects not only the single class of morbid influences usually denominated the predisponent causes, but also equally indispensably those which are called occasional and proximate; which indeed are so connected and identified with their natural precursors the predisponencies to the disease, as in many cases to make it impossible to disconnect them for the purpose of a separate consideration. Hence the necessity in practice of a much more minute and analytical investigation of ALL the causes of nymphomania than is professed to have been given of them in the very general enumeration submitted to the reader in some preceding pages of the present article. All causes whatever, be they proximate or remote, predisponent or occasional; and whether direct or indirect, sympathetic or metastatic in their influence, which shall be competent to produce in the cerebro-nervous system, or in parts of it, certain peculiarities of condition, accompanied also or produced by a state of vehement excitation of the genital system, are therefore properly within the scope of the practical physician's inquiry and study, whenever it shall become his duty to undertake the treatment of a case of nymphomania.

It has often been made the subject of observation that furor uterinus is more frequently the result of disappointments in affairs of love than of any other causes. But that cause may happen to be complicated with other painful states of the mind,

as anger, terror, sorrow, etc. These disturbances of the mind may take place at a time when the genital system might be presumed to be more than usually excitable, as during the state of fulness and occasionally of much pain and difficulty incident to the function of menstruation. We should moreover be alive to any connexion by any associated actions, which upon inquiry might be found to subsist between genuine uterine furor and other disorders of the same or of analogous functions, which may present themselves either at the same time, or in eventual succession. Hysterical mania, for example, in states of more than ordinary susceptibility from other causes, has occasionally been known to lapse into metromania or furor uterinus. *Dissert. de Furore Uterino, Auctore Fried. August. Peschek. p. 17. Storch. Krankheit. der Wieber. Bd. ij. p. 113.* Nymphomania has not unfrequently been produced by morbid sympathies from the action of other diseases of the nervous and genital systems, and with those of diverse other tissues and parts of the body. Storch, for example, quotes a case of genuine rabies, in consequence of the bite of a rabid animal, which was accompanied by strong metro-maniacal demonstrations. *Storch. loco citato.* A similarly morbid excitement of the genital passion has supervened upon attacks of apoplexy. *Bierlung. Thesaur. Theoret. Pract. p. 21.* A young female became the subject of the same malady in consequence of having been for a long time exposed to the action of cold and exhaustion from fatigue and watchfulness, which had the effect of producing an extremely irritable and congested state of the external genitals. *Storch's Krankheit, etc., 16, 113 et 114.* We are again referred to a case of a young lady of a comparatively tender age, for she was under the age of puberty, who fell into strong convulsions, accompanied by an ungovernable propensity to apply indecent friction and titillation to her external genitals, during the second stage of the measles. The disappearance of the eruption was followed by a morbillous ophthalmia which seemed to be a signal for the immediate retirement of the other morbid affection. The pudendal surfaces were observed to be constantly in a state of sub-inflammatory action, and much suffused with a serous transudation. *Leintin's Beobachtung einiger Krankheiten, p. 133.* Camper refers to a case of genuine furor uteri, produced by the irritation of a stone in the bladder. *P. Camper. Obs. circa mutat. calculor. c. ij.* A young lady, the subject of a pleuritic affection, was seized with nympho-

mania in consequence of an unapprized visit paid to her by a young gentleman of her acquaintance. This no doubt was an effect of a certain functional consent not yet accurately known or explained between one or more of the thoracic viscera and the genital organs. It was a result of a metastasis, which indeed proved permanently critical; inasmuch as the patient soon afterwards recovered rapidly from the effects of her first malady; whilst she continued for some time subsequently, "*aliquod tempus*," the subject of the uterine furor. The latter affection it should be noticed showed no disposition to yield until a new train of ideas was adroitly introduced to supersede the old one, by a fictitious announcement of the death of the young gentleman who had become the object of the vesanious part of the disease. Th. Bartholin. Act. Hafn. vol. iv. obs. 66, p. 167. Physicians have occasionally reported cases of vehement sexual desires, which had been produced by the abuse of drastic purgative medicines; a result possibly of sympathy between the uterus and its contiguous organ the rectum stimulated into a state of great irritation and perhaps more or less of inflammation by the action of the drug. Other varieties of stimulant and irritating medicines, as well as certain indigestible and flatus-producing compositions taken in the way of food, have been represented as having been productive of similarly morbid effects upon the functions of the uterus and its appendages. Sebitz. Exercit. Medic. p. 377. Irritable states of the bladder, whether primarily from diseased actions of its own tissue, from scirrhus or vesical calculi, or secondarily from diseased conditions of one or both kidneys, are credibly reported to have been from time attended by intense sexual desires in both sexes, and in the female to have become ultimately complicated with mania. Ephem. Germanic. cent. i. et ij. obs. 168. Schol. p. 344. Bonnet. Sepulchret. lib. iij. § 34.

To an analogous head of subject have we to refer certain cases of metromania and metromelancholia, which have been quoted as results of congested states of the uterine system from a too sparing or suppressed menstruation. Th. Bartholin. in Epistolis, cent. iij. p. 144. Ad. Brendal in Obs. Anat. dec. iij. obs. 10. p. 25. Schurig. Parthenolog. p. 170. Act. Hafn. vol. 1. obs. 80. p. 164. The cases are not numerous, but still there are several on record, of metromania produced by metritis; the evidence of that fact, as in Dr. Bright's case, being duly founded on post-mortem examinations. A young woman, observes Lan-



zoni, was seized, without manifest cause, with nymphomania. She died on the fourteenth day of her disease. The uterus and the ovaries were in a state of inflammation. *Ephemerid. Germanic. dec. iij. an. 5. et 6. obs. 121. p. 253.* Baldinger's *Magazin für Aerzte. Bd. x. p. 892.* The metritis frequently incident to the puerperal state, seems to be of a character seldom calculated to produce nymphomania. Nevertheless, there are not absolutely wanting cases of that kind. *Peschek. in tract. citat. cap. iij. p. 43.* It is to some such action as that of a mild variety of metritis that we should probably ascribe primarily the insidious atonic fever which we sometimes observe to terminate in puerperal insanity. Some cases have been recorded of nymphomania in its severest forms as an effect of inflammation exclusively of the lateral appendages of the uterus. *Blancard. Collect. Med. Physic. cent. 1. obs. 28.* *Lochner in Ephemerid. Germanic. cent. viij. obs. 3. p. 225.* *Michael. Prax. Clinic. p. 556.* *J. M. Hoffmann, Disquisit. Anat. Path. Spec. 9. § 4. p. 117.*

It is a fact well known, that nature has sometimes chosen to supply the genital system and its contiguous tissues, with an excess over the usual number of spermatic blood-vessels, both of arteries and veins; the excess in some cases amounting to two or three of each class of vessels above the ordinary number; the accessional vessels in the mean time presenting also an excess of capacity over those of standard dimensions. Should we not expect that a supply of blood so unusually determined to organs naturally endowed with no ordinary susceptibility of excitement as those of the genital system, might very probably lay the foundation of a strong predisposition to high-toned diseases of those organs, and especially to the peculiar disease under present consideration? And what has been the fact, in many cases, where such distributions of blood-vessels have obtained? Why, that their subjects had actually been distinguished for strong sexual propensities, or been the victims of nymphomania in different degrees of intensity. *Salzmann, in Obs. Anat. a Th. Wynant's edit. p. 35.* *Bierling. in Ephemerid. Germ. dec. i. an. 2. obs. 208.* *Bonnet. Sepulchret. lib. iii. § 34.* *Kerkring. Spicileg. Anatom. obs. xxxij. p. 72.* Morbid enlargements of almost all kinds, both of the genitals and of other pelvic organs, as well as other causes of irritation, by their bulk or immediate proximity, such for example as calculous concretions, and other deposits foreign to the natural actions of the parts, occasionally

found imbedded in the substance of the uterus, or its immediately dependent tissues, are known to have been attended by the peculiar demonstrations of metromania. Bonnet. Sepulchret. lib. iij. § 33.

The reader is well aware how frequently morbid developments of the clitoris, and certain peculiar personal habits, calculated to determine an increased quantity, or to quicken the velocity of the circulation, of blood in the genitals, have been accompanied or followed by metro-maniacal demonstrations. Hence also, more or less, the same results in predisposed subjects from more than ordinary devotedness to the exercises of riding, dancing, etc. Storch. p. 204. Astruc. p. 351, 355. Schmeider, in Ephemerid. Germanic. cent. iij. et iv. obs. 156, p. 354. Bernstein's Prakt. Handb. der Geburtsch. p. 196. Joerg. § 214. Primeros. p. 193. Schurig. Gynæcol. p. 12. Blancard. Lex Medic. p. 277. Musitan. de Morb. Muliebr. p. 473. Mercurial. de Morb. Muliebr. lib. iv. cap. 8. Liebmann de Furor. Uterin. p. 24, 25.

Such is a sketch of some of the principal causes of nymphomania, and such, therefore, the objects of professional inquiry proper for the consideration and minute investigation of a physician when about to undertake the treatment of that formidable disease. It is indeed a fact, that many of its causes are beyond the reach of art to remove, as often as their actual existence is beyond the reach of discovery before the patient's death. But of some others, the precise character and locality are such as to admit of their being distinctly ascertained, and made the subject of treatment.

From the above review of its pathology, it will obviously appear that uterine furor must often present the greatest difficulties in its treatment, and that in some cases, independently of all regard to the recency of its date or the length of its duration; while however in many others, although very formidable, as the array of facts now presented may justly appear, we are nevertheless still left in possession of substantial grounds to hope that our efficient and judiciously conducted services may prove successful.

In the first stage of nymphomania, and when not depending upon incurable disease of structure, there can be no good reason for supposing that its disordered actions, whether of the head or of the genitals, provided they are exclusively functional, should

not yield to a vigorous repression of the phlogosis attendant on the uterine symptoms, aided by a discreet moral management of the maniacal part of the disease. Even in the second or chronic stage of the malady, many cases might be quoted in proof of its occasional curableness. But in its THIRD AND LAST stage, viz. in that of absolute fatuity, the case should be considered as almost utterly hopeless. Diminution of intensity of the symptoms of nymphomania may perhaps sometimes be hailed as evidences of possible ultimate recovery; but such occasional remissions should more frequently be regarded with suspicion, as really amounting to so many delusive promises destined never to be fulfilled, or rather to be suddenly extinguished by the unlooked-for death of the patient; or by the lapse of the more tonic form of the disease into incurable fatuity.

There can be little or no ground for anticipating a permanent cure, and not much for the hope of any considerable remission of the symptoms when its existence is known to depend on a structural disease of any part of the uterine system; progressiveness being an essential attribute of almost all structural diseases.

Without taking any cognizance of the structural or proximate cause of the disease, which indeed is not always to be ascertained, experience appears to sustain the commonly-received opinion, that a high-toned malady, presenting itself as a consequence of some sudden disturbance in the actions of the genital system, in robust, sanguineous, or choleric subjects, admits of a more favourable prognosis than its opposite of a low-toned character, constituting what has been called UTERINE MELANCHOLIA, and usually presenting itself in feeble and timid subjects of originally nervous, hysterical, and melancholic temperaments.

It may be further remarked, that the more powerful and COMPLICATED the causes of the malady, and the more easily, efficiently, and unremittingly they are observed to sustain its actions, the more uniformly obstinate will be its character, the more difficult its subduction, and the more unpromising its issues.

It is further important to observe that nymphomania has sustained very unexpected solutions of its morbid actions, in consequence of the supervention of critical discharges and other spontaneous changes in the constitutions or sexual functions of its subjects. Astruc. *Maladies des Femmes*, p. 370. Hence the re-establishment and due performance of the menstrual function



after a previous retention of its tributes for many months. An unusually copious quantity of the catamenial discharge, amounting in some cases to an actual uterine hæmorrhage, profuse leucorrhæal discharges critically instituted and indefinitely protracted, certain acutely-experienced impressions, the result of intense functional excitements during the enjoyment of the sexual congress, and especially impregnation, have been enumerated among the principal changes to which these statements refer. The remedial influence of the latter great change has not been considered absolutely permanent, unless when within a year or two from the delivery consequent upon the critical gravidity the patient should be fortunate enough to become pregnant again. One case is recorded by Harvey, in his *Dissertation de Partu*, last book, of recovery from nymphomania, in consequence of the exposure of the uterus in a state of procidentia to the action of intense cold.

When nymphomania is assumed to be merely idiopathic, and exclusively the result of strong sexual phlogosis, without morbid derangement of structure, and supposed especially to originate in inordinate vigour of the sexual passion, or in disturbances of the genital system consequent upon disappointments, or other erotic miseries, we have presented to us an example of the most common variety of the disease. After the subduction of the more acute symptoms, which is to be attempted in the manner already prescribed, and which indeed, with some modifications as to vigour, should be pursued during the acute stage of the disease, under whatever circumstances of origin, we have to deliberate on our future indications and more extended combinations in the event of the malady being protracted, and eventually of its subsiding into a chronic form. Under the altered circumstances of the case as now supposed, general bleeding should be considered as no longer indicated or permissible; whereas even local bleeding by means of leeches should be had recourse to with great caution, but much more moderately, and at longer intervals. The practical rule should be, that no inordinate fulness of the vessels of the genital system should at any time be permitted to be renewed. With this view, as well as for the best moral reasons, all obscenities and personally objectionable habits attempted on the part of the patient to be practised, should be most religiously guarded against and repressed. The use of the sub-tepid or that of a moderately cool bath should be persisted

in with little or no relaxation, together with the assiduous administration of demulcent and substimulant injections into the vagina, and cold evaporating lotions and applications to the external genitals and their neighbouring surfaces.

The punishment of indecencies or other improprieties of conduct, by throwing cold water into the patient's face, as recommended by Bienville, seems well adapted to its intention; and should on no account be superseded by blows or any other mode of coercion founded on the principle of PERSONAL CASTIGATION. The strait-waistcoat will be found in many cases an indispensable instrument of repression. During the day, and after the commencement of convalescence, it should be partially and gradually dispensed with. Whatever comforts, and even indulgences, which consistently with her safety and in accordance with the general indications of her case could be extended to the fair subject of our treatment, should of course be most kindly and liberally accorded to her. Her residence, if it might be made a matter of choice, should be in an open salubrious country, and in large and airy apartments. Her bed should be well adapted as to accessional furniture, for safe and yet mild personal security and coercion. In other respects it should consist of a hair mattress, sound and clean, and covered with such sheeting and blanketing as the temperature of the season might indicate. Her body clothing should of course be clean, light of texture, and in quantity duly suited to the season and climate. The feet, for the most part, should be clad in yarn socks or stockings and thick shoes; it being an object to divert as much as possible any unequal determinations of blood from the head and the genitals to the extremities.

With a view to the establishment of a well-balanced distribution of blood to all parts of the body, it might prove a measure of most important utility to provide the patient, especially after the commencement of her convalescence, with convenient means, and the opportunity, for some easy and pleasurable exercise.

Her diet should consist principally, if not exclusively, of vegetable food. No kind of meat should be allowed during the acute stage of the complaint; nor any, excepting in small quantities, under any other forms or circumstances of the disease. Salted foods, spices and aromatised condiments of all descriptions, should be proscribed. All drinks whatever should be diluent, demul-

cent, and cooling. Articles often technically called refrigerant, consisting as they generally do of saline preparations, should be withheld from their tendency to irritate the kidneys and bladder; the irritation of the latter organ being liable to be propagated to its contiguous viscus the uterus. The question of marriage has been already very lightly touched upon. It must always be a delicate subject, and in many cases would be found beset with insurmountable difficulties. In the worst forms of the disease it could scarcely be deemed practicable. Under its milder, mitigated, and convalescent forms, there are innumerable authorities in favour of its utility. If the disease be supposed to depend upon a complication of causes, amongst which a structurally diseased condition of any of the genital organs MIGHT BE PRESUMED TO BE ONE, it would be an unpardonable act both of weakness and madness to entertain the question of marriage for one moment.

Cases of symptomatic furor should be attempted to be cured on the principle of removing or alleviating the primary disease. If, for example, the original disease be LOVE, possession of the beloved object would furnish, on this principle, the most suitable and efficient remedy: although, in most cases, it would be found impracticable to proceed to that consummation without a previous treatment, by bleeding and other measures already described, of the secondary malady. Suppose again the primary disease to be inflammation of an organ more or less remotely situated from those which afterwards, by translation of morbid action, become the subject of the disease: here again it would be obviously expedient, in the first instance, to allay the new storm by bleeding and other depletory measures; and then to fall back to the treatment of the primary disease, the remains of which might be dislodged by mercury, or its associations disturbed and eventually dissevered by counter-irritants applied to the integumental surfaces, supposed to correspond or to be proximately contiguous to the part or viscus originally affected by it.

Again, suppose the furor to have owed its origin to suddenly-suppressed menstruation: amongst the consequences of such a result we should be prepared to encounter a pretty smart fever kindled in the system. But febrile actions from the mere suspension of a function, are often neglected or very inactively treated. Sanguineous congestion and phlogosis of the uterine system would supervene as natural consequences. If had recourse



to very speedily after the suppression of the catamenial discharge, the treatment proper for the subduction of the metro-maniacal symptoms might very probably have the effect of restoring the lost balance of the suspended function, and thus both sets of derangements might be happily disposed of together, and in a short time. In the event, however, of neglect of the natural function, in the first instance, there would be great reason to fear lest that function might remain for a long time, or be even permanently suspended; and so conduce to an eventual establishment, in a chronic and protracted form, of the metro-vesanious malady. Subsequently to such a complicated and most unfortunate result, the indication which, as it seems to the author, might be most advisable in the circumstances to pursue, would be to determine our almost entire attention, and to use our best exertions, with the utmost promptness and vigour, to effect the restoration of the suspended catamenial function, without however laying aside the use of the baths, lotions, etc. as before recommended as important items in the treatment of the metro-vesanious part of the case.

With respect to the treatment of THE MENTAL ALIENATION, which forms so important a part of nymphomania; it is worthy of observation, that it presents quite as many difficulties, and will require on the part of the practitioner the exercise of quite as much nice balancing of modes and measures to be made available to the interests of the patient, as the other equally interesting section of the management. Copious venesection is equally indicated in the treatment of the maniacal part of the case, as it is for the subduction of the extraordinary phlogosis of the sexual organs. A similar observation may be made in reference to the use of the tepid and sub-tepid baths.

As a measure calculated to produce a relaxation of tone in the morbid actions both of the head and of the genital organs, an efficient emetic, consisting of a grain and a half of tartarised antimony and a scruple of powder of ipecacuanha, should be exhibited within half-an-hour after the first general bleeding. This measure would have the effect at once of emptying, cleansing, and improving the actions of the stomach; whilst it would also most probably conduce in some measure to a diminution of intensity of the cerebral excitement. With a similar general view, the action of the emetic should be followed up by the administration of an active purgative, consisting of five or six

grains of calomel, and a scruple of jalap. On the cessation of the action of the purgative, the rectum should be washed out with a pint of warm water, and half-an-ounce of common salt or brown sugar; and afterwards charged with ten or twelve ounces of water or thin gruel, of the temperature of from forty to fifty degrees of Fahrenheit, with a view to carrying off any remaining irritating particles of the salt. After the general bleeding already proposed for the subduction of the uterine part of the disease, it would require consideration as to how soon, and in what precise circumstances, it might be expedient to abstract blood LOCALLY from the head or from any of the more accessible vessels in its immediate neighbourhood. The author considers that that object, when actually indicated, would be best attained by efficient cupping from the temples, or from behind the ears, or by the common operation of bleeding by incision of one of the external jugular veins. Leeches are sorry operators, in cases of this kind. For the reduction of the morbid excess of heat in the head, an indication at least not less important than that of subducting from the morbid tone of its circulation by the abstraction of blood from it, see the process recommended in page 345.

Of the medico-moral part of the treatment, little more can be observed on the present occasion than that it must almost altogether be left to the discretion of the physician in attendance, and his auxiliaries the functionaries charged with the custody and personal management of the patient. The keepers and nurses should of course be females of good reputation, of a calm and quiet temper, not contentious nor loquacious, possessing as much understanding and practically good sense as can be ensured in persons of that class, firmly obedient to the instructions of their superiors, not young enough to be giddy and therefore uncertain and irregular in the performance of their duties, and not old enough to have become torpid, asthmatic, deceptious, or drunken. It is obvious that the strictest sexual morality of a person so situated should be made a matter of most indispensable requirement. The more decided medical indications to be observed in the treatment of the vesanious part of nymphomania, must, with very few modifications, be precisely the same as those on which are founded the most efficient practice in other varieties of insanity.

**OF STERILITY.**—Sterility, barrenness, unproductiveness, female unfruitfulness, are in the female what impotence is in the male.

In both it denotes the absence or an extraordinary torpor of the faculty of reproduction. In ancient times, and especially among the Hebrews, this incapacity for reproduction was considered in the light of an opprobrium; and even in modern times, there attaches to it some slight degree of discredit.

Sterility is either absolute or relative. Hence its methodical distribution into two principal varieties; the one depending upon absolute incompetency of the generative organs for a prolific consummation of the act of procreation; and the other the effect only of torpor or of some morbid peculiarity of function, in one or more of the organs charged with the attribute of reproduction. The former variety is again distributable into two other subdivisions, viz., first, when the conformation of the generative organs of the subject is such as to oppose insurmountable obstacles to the act of sexual intercourse; and secondly, when no valid obstacles are presented to the consummation of that, but where impediments are nevertheless opposed to the due transmission of the semen masculinum to its properly ultimate destination in the genital system of the female. Of the several varieties of impediments to the natural intercourse between the sexes, some are capable of being removed by certain operations of art; whilst others are essentially incurable, as being totally beyond the reach of any services either of surgery or medicine. Curable malformations are generally those of the external genitals and vagina; whilst the groups of incurables are principally those which affect the uterus and its lateral appendages.

The faults chargeable upon the vagina are, its absence, insufficient development, an imperforate state of its orifice, cohesion of its parietes, occupancy of its tube by substances foreign to its own organisation, and preternatural intercommunications between its proper passage and the passages and cavities of other organs either strictly contiguous or otherwise more or less accessible to it.

The greater number of malformations of the external genitals and the vagina, competent to oppose effectual obstacles to the performance of the sexual congress, having been treated of at some length in a preceding chapter of the present work, and their remedies in curable cases severally pointed out, it would now be both unnecessary and improper to occupy the reader's time with any additional discussion of that part of our subject. At present, therefore, we have briefly to notice such defects and



malformations of the organs concerned as are calculated to prevent conception, without however having the power of impeding the due consummation of the venereal act. This class of malformations of the sexual organs, are those which exclusively affect the uterus, the ovaries, and the Fallopian tubes. These causes of sterility are chiefly operative by reason of their competence to oppose obstacles to the due transmission of the semen masculinum to its ultimate destination. The first group of impediments especially concerned in this part of our inquiry are some principal malformations of the uterus, viz., an imperforate state of its orifice, the absence of a passage through its cervix, and the absence of a cavity within its body. It matters not whether these be original conditions, or subsequent malformations produced by accidents or disease. If the latter, their subject would become sterile, after she might have been fruitful antecedently to the occurrence of her disqualifying accident or disease.

Cases have been numerous recorded of the absolute non-possession of a uterus. Such a capital defect would be fatal to the interests of reproduction in more ways than one; first, as it would most probably impose upon nature the resource of closing up the superior part of the vagina after the manner of a cul-de-sac; which of course would have no passage at that part for the transmission of the semen masculinum to the parts above; and secondly, as it would amount to an absolute privation of an organ most necessary and indispensable to the very institution of the process of conception. Examples of these several defects and malformations will be duly submitted to the reader when we come to treat of the structural diseases of the uterus.

Authors have enumerated many diseases of the uterus among the causes of sterility; as cancer, intumescences of parts of its parietes, unhealthy conditions of its mucous membrane, hydropic effusions into its cavity, the occupancy of its cavity by morbid growths or deposits of inorganic substances, etc. Any of these circumstances may indeed very properly be placed amongst the most common causes of female unfruitfulness. They are not however to be considered as absolute causes of barrenness, it being possible they may all severally exist without producing an absolute obturation of any of the genital passages. It might be presumed, and it has indeed been so asserted, that cancer is attended with so painful a condition of the neck of the uterus, that no woman when become the subject of it could submit to

the means of being impregnated; and even if that were possible or probable, it is scarcely credible that any woman would really become recipient of the influence of impregnation under the misery of the circumstances supposed. Facts however are stubborn things. Cases of pregnancy complicated with carcinomatous states of the uterus are rather numerous recorded. In explanation of a fact so remarkable, it may be observed that pending the state of vascular fulness and phlogosis usually observed to precede the actual establishment of scirrhus or carcinomatous action (a condition of the organ which we may perhaps be permitted in many cases to identify with a state of predisposition to malignant disease), the uterus is not unfrequently the seat of an intense pruritus; by which its possessor becomes the subject of a violent excitement of the sexual passion; and of which the gratification at that period is not only not painful, but attended by more than an ordinary degree of enjoyment. If, under these circumstances, we suppose the absence of physical and constitutional impediments, conception would be a most natural consequence; and under the circumstances supposed, it is well known that conception very frequently does take place. But mark the result. The disease in such cases is often rapidly progressive in its character. The prurient condition of the uterus is quickly followed by an intense sense of heat, and that again as rapidly by smart twinges of pain, which are usually referred to the interior of the pelvis or to the small of the back. The pregnancy begins to be suspected; but the disease continues to increase in its demands on the patient's attention. In the course of some weeks, or perhaps some months, the uterus, being painfully and frequently stimulated by the exasperations of the malady, is thrown prematurely into expellent action, which must end in a miscarriage. After an imperfect recovery from a painful and tedious confinement, the patient naturally looks forward to a period when she is to attain to a full repossession of her former state of health and strength. But that period is destined never to arrive, and the disease is observed to advance with rapid strides. The catamenial function, if again re-established, becomes irregularly suspended or disturbed, excessive in its tributes, or complicated with profuse hæmorrhages; and the enemy continues unrelentingly to advance. The characteristic pains of the malady become more intense and less intermittent, and its peculiar discharges more fetid and profuse. At length the patient dies.

It sometimes, but less frequently, happens, that impregnation takes place at a more advanced period of a carcinomatous disease than we have here supposed. The author once possessed a preparation of a carcinomated uterus, which was so far destroyed by the characteristic ravages of the disease, that only about two-thirds of its remnant could be distinguished to be uterine structure. When it was presented to the author by a late admired pathologist and lecturer on pathological anatomy at St. George's Hospital, there was attached to the fundus an ovum of about ten or eleven weeks' gestation.

OF FUNCTIONAL DISEASES CONSIDERED TO BE CAUSES OF STERILITY. —The FUNCTIONAL DISORDERS which most frequently act as causes of barrenness, are often so far relieved or remedied that they occasionally cease to act as efficient impediments to conception.

Sterility has sometimes been imputed, perhaps with considerable exaggeration, to malpositions of the uterus, as also to relative malpositions and obliquities of its orifice. When the venereal act, from irritated conditions of the genital passages and of the uterus itself, consequent upon severe forms of prolapsion or other malpositions of that organ, is performed with little or no satisfaction, or perhaps with pain, it would scarcely excite surprise, that, under such circumstances, a woman might show no great disposition to breed. But cases simply of malposition are not to be considered as physically and absolutely incompatible with the existence of the power of being impregnated. When the genital passages are free from painful irritation, and the uterus is kindly tempered and adequately stimulated, it is strongly the opinion of the author, that that extraordinary organ is not so unaccommodating to its own interests as some foreign writers would have us believe. Witness the evidence of impregnations of undeflowered subjects; of women with unruptured hymen, and even with apertures through that membrane scarcely large enough to admit a crow quill; the uterus in the mean time maintaining its naturally-elevated and original position within the pelvis.

If we duly consider these facts, what must become of the mighty difficulties to impregnation on account of trifling malpositions of the uterus or its orifice; and of the pretty-sentimental instructions given by authors for the due adjustment correlatively of the organs usually employed on these occasions?

It is considered, and correctly no doubt, that an imperforated



state of the Fallopian tubes, must prove an insurmountable impediment to conception. Adopting this hypothesis, we must of course take for granted the fact, of both these passages being in a state of obturation. It is manifest that incompetency for impregnation depending upon this cause can only be proved after the subject's death. The closure of the passages through the Fallopian tubes has usually been found at or near their abdominal extremities. It is remarkable how very frequently in post-mortem examinations, we find the fimbriated terminations of these tubes morbidly adherent to their corresponding ovaries. The author does not recollect that he has met with a single example, although he has often and carefully examined the parts with that view, of a state of imperforation of the Fallopian tubes

AT THEIR UTERINE EXTREMITIES.

The OVARIES are rendered incompetent to perform their important office in the business of reproduction, so as to produce absolute sterility, by the several circumstances of their being wanting, defectively developed, or structurally diseased. When either of the two former circumstances has happened, their subjects have usually exhibited certain external manifestations of the actual imperfection of their organization. The ovaries, it is generally believed, are the proximate agents, or, to state the fact still more precisely, they are themselves the functionaries employed by nature to generate the primordial fabric of the ovulum in the female. If absent or physically marred or blasted as to the condition of their own specific tissue, it is obvious that they must prove incompetent for the mysterious work of plasticising the million times more delicate fabric of the latent and yet doubtfully existing genitura. The case of Mr. Pott's removal of both ovaries by two operations performed upon a young woman, a patient of Bartholomew's Hospital, is familiarly known to the profession. See Pott's Works, p. 184. Of cases of castration of the human female, from motives different from those of Mr. Pott, the records of our profession are not absolutely destitute. Johan. Brod. Miscell. Lib. v. cap. 3. Kormann de Jure virginitatis, cap. cxvi. p. 298. Itter Synopsis Philosoph. Moral. Lib. iij. cap. 3. Schenck. et Schol. Medic. p. 13. Wier de Prestig. Dæmon. p. 288.

The ovaries are subject to several important diseases, of which there are probably few, if any, which we may not presume to be competent, either to impair or else absolutely to destroy their

progenitive attributes. The most frequent variety of ovarian disease which we may suppose calculated to produce this effect, is that of an obviously morbid enlargement of the vesiculæ Graaffianæ, accompanied by a degenerated structural condition of their parietes. This probably is the most frequent cause of sterility in young women APPARENTLY possessing, and continuing for many years to possess, a fair share of general good health.

Absolute barrenness might be expected to be a consequence of the absence, or obliteration, or non-communication with the ovaries, of both spermatic arteries.

Having concluded a very brief sketch of the causes of sterility, which we suppose to have the power of acting absolutely and with the certainty inseparable from the agency of physical laws, it now remains to notice a few principal circumstances relevant to our subject, competent very often to produce barrenness, but by reason of their influence being less positive, and their conditions more changeable and remediable, not so ABSOLUTE AND IRREVERSIBLY OPERATIVE IN THEIR AGENCY. Of these we may first notice an imperfect performance of the function of menstruation. The absence of this remarkable function subsequently to the arrival of the age of puberty, is indeed justly considered as indicative of incompetency and disqualification in the female, for the rights and privileges and due performance of all the functions of connubial life. There are few examples of women having been impregnated either before the appearance or after the cessation of this function. Menstruation is as much a common attribute of women of all nations, climates, and countries, during about thirty of the best years of their lives, as is the faculty of reproduction itself; which faculty is an actually efficient attribute of the human female only so long as she continues to be regularly and healthfully the subject of the catamenial function.

Amongst the most influential causes of sterility, next to those which we have enumerated under the head of ABSOLUTE CAUSES, have been usually placed certain peculiar varieties of constitutionally and sexually feeble health. We are indeed well taught by experience, that constitutional delicacy and SICKLINESS are in very many cases an unquestionable indication or accompaniment of sexual infirmity in women. When the health is constitutionally thus delicate, women after having for years been unproductive in consequence of suppression or irregular performance of the function of menstruation, have again, upon the

restoration and improved execution of that function, become the mothers of a numerous second section of a family.

A state of good health of all or of the greater number both of the organs and functions of the body generally may also be considered as a favourable disposition or condition *a priori*, and as a matter of promise and probability that a female so circumstanced should possess in perfection the attribute of fecundity; whereas the reverse conditions might be reasonably assumed as generally indicative of the absence, or at least of much feebleness of susceptibility to conceive. Inasmuch however as good health and a strong constitution are only relative conditions of the power in question being possessed in much vigour, so experience also proves that languid health and a feeble constitution are not absolute but relative causes of sterility.

Unsuitable marriages may be placed amongst the most prominent RELATIVE CAUSES of sterility. How often do we meet with examples of women who have been childless to one man, although perhaps the object of their first attachment, and afterwards very prolific to a successor? Mauriceau, vol. ii. obs. 316, p. 261. And have there not been examples of wives who have been cold and unprolific to their husbands, but have been ardent and productive to other men? Not only is it an essential condition that a female, to be prolific, shall not exceed a given age; but it is likewise a condition almost equally desirable and necessary, that the MALE shall also be of an age to be possessed of proper vigour of the powers belonging to his sex: for although we meet with constant examples of women proving prolific to old men, yet the examples of fecundity are incomparably more numerous when young wives enjoy the happiness of having suitable husbands, than when they foolishly sacrifice themselves to the miseries of disappointment from old ones. It is an observation of Plato de Legib. Lib. vi., that the power of procreation is most vigorous and most efficient for the production of a strong progeny about the age of thirty and forward, in the male, and that of eighteen and forward in the female. Remarkable Exceptions. Ambros. Paræi Tract. de Renunciat. ad Cadav. Anton. Musa. tom. ii. epist. 29. Plinii, Lib. vii. cap. 4.

It was once an opinion that homogeneity of temperament of husbands and wives should on no account be left out of the list of the non-absolute causes of infecundity: so that a brunette, of a choleric or melancholic temperament, should be expected to



prove more prolific to a husband of a light complexion and sanguineous temperament than to one of the same complexion and the same temperament with her own. B. de St. Pierre is said to have believed so earnestly in the efficacy of this contrariety of temperaments, as well as in the fact of its general and practical observance under the kindly auspices of nature, that he pretended he could pretty generally sketch a good likeness of a favourite lover or a much-beloved husband from a near view of the air, temperament, and actions of the lady who honoured him by her preference. But St. Pierre, it is pretty well known, was an enthusiast as well as a philosopher.

Again, certain blemishes and defects of character, as also physical deformities productive of disgust and antipathies between a husband and his wife, have been enumerated among the non-absolute causes of sterility. "One could cite the example of more than one woman," observes M. Capuron, *Traité des Maladies des Femmes*, "who never chose to receive the caresses of a husband or a lover after he had refused to die at the post of honour." We also well know how great and universal is the repugnance which is felt for such infirmities as a fetid breath, discharges from diseased nostrils, foul cancerous ulcers of the lips, the horrible ravages of siccities and of *noli me tangere*, a constant involuntary escape of the contents of the bladder or rectum from palsy or other injuries of their sphincters, etc. Should a woman have the misfortune to be afflicted by any of these disgusting infirmities, her husband, let his natural temperament be ever so ardent, might surely be excused, if he occasionally felt his affections chilled. Infirmities are common to both sexes, and of course mutual in their influences. The wife is quite as liable naturally to be disgusted by any foulness or offensive infirmities affecting the husband as the latter is by those of the former. A young Englishwoman of great beauty and accomplishments was affianced to a gallant officer of cavalry of suitable age, during an early period of the late French war. Soon afterwards, the lover was ordered abroad with his regiment, and won the honour of being esteemed a brave officer. But WHERE LIES HONOUR? In less than six months after he left England, his lower jaw was shot off by a cannon ball. He survived, but was horribly disfigured by his unfortunate wound. Through the kindness of a professional friend the author had the opportunity of once seeing it in the course of treatment; and

the sight was indeed so frightful, that he has seldom witnessed its equal in any of our public hospitals. The young lady, more honourably perhaps than wisely, declined to accept his offer to withdraw his suit, although very strongly urged to it both by her lover and by her own friends; and she chose to be married. Public rumour has reported that the marriage did not prove so delightful a connexion as was possibly anticipated by the lady; and at all events it furnished no pledge of her affection for her husband.

Women of COLD CONSTITUTIONS are generally supposed to be but feebly susceptible of the influence of impregnation. But this rule, if it be at all true, is not one without many exceptions. We see every day the poorest and most meagre-looking subjects surrounded by numerous progenies; whilst on the contrary women, presenting in respect to physical attributes the most plausible pretensions to fecundity, who nevertheless have never attained to the happiness of being mothers. It has indeed been asserted that women of peculiarly erotic temperaments are often less susceptible of impregnation than others more moderately endowed with amorous passions; and that subjects especially of nymphomania have rarely been known to conceive during the more intense paroxysms of their disease. Gardieu, *Dict. des Sciences Médicales*, vol. lii. p. 51. "A beautiful and interesting young lady of a sanguineous temperament was married to a husband of a HOT DRY ATRABILIOUS constitution, who had only a short time previously recovered from a dysentery; with whom she lived in hopeless sterility for several years. The peculiarity of this case was, that although the subject of it received the semen masculinum with the greatest pleasure, she was immediately after seized with the most violent pains and with such extreme anxieties of the precordia as often amounted to deliquium animi. She not unnaturally attributed this result to a morbid acrimony of the semen; for when after turning herself frequently in bed she felt that all the semen had escaped she found herself again so free from molestation as soon afterwards to be induced not to refuse the embraces of her husband." D. Joh. Jacob. Waldschmid. *Ephemerid. Germanic. an. 3. 1672. Obs. 233, p. 422.* "A woman was dissected on the 30th of May who had suffered decapitation on account of lewdness and adultery. This woman's desires could not be satisfied either by her husband or by other men. Yet she was never pregnant. On the right side the sper-

matic artery was found bifid. A fleshy excrescence which grew from the inside of the orifice of the uterus hung into the vagina to the length of the little finger, which, being of about the thickness of a lumbricus worm, had the effect of entirely closing up the mouth of the womb so that no semen could enter." D. Bierling e Magdeburgo. Ephemerid. Germanic. an. 2. 1671. p. 310. For analogous causes of sterility see also Lieutaud, Hist. Anatom. Medic. Lib. i. obs. 1455, 1456, 1459, 1460.

It is an opinion as old as Hippocrates, that females more than ordinarily the subjects of obesity are less susceptible of impregnation than others less charged with adipose substance. The explanation of this presumed fact is somewhat curious. It supposes, in cases of sterility from this cause, the intestines and omentum to be overweighted with fat; and that being thus overweighted, they force the uterus mechanically to seek a lower situation in the pelvis than what it should naturally occupy; and as deposits of adeps are not uniformly distributed upon tissues equally liable to be incommoded by them, it is made an additional part of the theory, that the uterus may thus become the subject of partial pressure as to different parts both of its fundus and parietes, so as to be driven into all sorts of awkward and inaccessible positions, much to the prejudice and discomfiture of the most important interests of the state of marriage. Hippocrates ascribes the indisposition to conceive in these cases to the blood more especially destined to sustain the functions of the uterine system being diverted to the cellular membrane. Lib. v. Aphor. 46. Gardieu, Art. Stérilité, Dict. des Sc. Méd. vol. lii. p. 509, ascribes sterility under the same circumstances to the inertia which is then common to the uterus with other parts of the body. The influence of obesity in the male relatively to the same interests has been attempted to be accounted for by supposing that an excessive charge of adeps is incompatible with an adequate secretion of semen. If the quality of that essential secretion be good, i. e. duly potential in its influence, when actually applied, its quantity perhaps may be of no serious consequence.

Constitutional diseases of almost every kind and name, with the exception perhaps of some pulmonary complaints, are upon the whole to be considered as unfriendly to the function of reproduction. As to the action in this respect of acute diseases, such as fevers, the phlegmasiæ, and some of the principal neuroses,



they must be deemed principally, if not exclusively, operative, during the presence of the disease, and for a short time subsequently to the patient's recovery. It has, however, been reported on credible authority, Capuron sur les Maladies des Femmes, p. 254, that women have sometimes conceived and become actually pregnant during paroxysms of hysteria, syncope, lethargy, and even during states of apparent suspension of all the functions of life.

We have already observed that conception and pregnancy are not absolutely incompatible with certain diseases of the uterus and its appendages, provided they were of a nature not to compromise the practicability of the conjugal act, nor that of the transmission of the semen masculinum to its proper and ultimate destination. Hence cases are abundantly recorded of pregnancy complicated with uterine polypi, hydatid formations within the uterus, intercommunications between the vagina and its contiguous organs, together with sundry morbid affections of the ovaries and Fallopian tubes, or at least of one ovary and one Fallopian tube, and partially possibly of both systems of these lateral appendages of the uterus.

It is a general opinion, and one it would seem well founded, that excess in the use of the means of impregnation is upon the whole unfavourable to the interests of fecundity. Hence the almost uniform sterility of the more public prostitutes. In the instance of many such subjects, however, it is worthy of observation that their sterility may also be partially attributed to other excesses incident to their course of life, and especially to their habitually immoderate use of spirits and fermented liquors. It has been asserted that the abuse of spirituous liquors has had the effect of greatly checking the population over very extensive districts of Russia, where that deleterious habit is said to prevail to a degree happily unknown in more southern latitudes. But it would seem scarcely right to pronounce the abuse of spirits to be the only or perhaps principal cause of the thinness of the population in the countries here referred to. It is probable that the infecundity of their females may also in a great measure be attributable to the circumstances of destitution, as to many of the means and comforts of life to which they are especially exposed. Add, moreover, the frigifying influence of their climate. "The human race," observes M. Fodéré, "is also, doubtless, the subject of favourable conditions in respect to its existence and its means of multiplication. A humid warmth of

climate is that which would appear most to suit it, not so much indeed as a means of long life, but as a condition of its easy and rapid propagation. The extremes of heat and cold, and of dryness and humidity, are conditions of climate less favourable to the multiplication of our species. Lower Egypt has, at all periods, been represented as an immense nursery both of the human species and of animals. The same prodigious activity of the function of reproduction appears to extend along all the great rivers of Africa. The sea-coasts, both of the ocean and of the Mediterranean, are extremely densely populated; a circumstance as much probably to be ascribed to the sweetness of the climate as to the habit of living upon fish, of which the meat is nutritious and easy of digestion, to which the inhabitants of those countries are addicted. Higher Egypt, on the other hand, the arid regions of the interior of Africa and Arabia, and all those countries which approach the arctic pole, and which stretch beyond the sixtieth degree of latitude, are less numerously peopled. In the province of Nice, after having witnessed the greatest fecundity in the basin which surrounds that town, and which forms its immediate territory, as also that of the valley of Nervi, we are surprised on ascending the heights of Perinaldo, to observe what a great number we meet with of young women who have never menstruated, and of married women who have never had families. I have likewise had occasion to make similar observations at Beuil, a district northward of the same plains. Both of these communes have their localities on very dry and elevated tracts of country; the one, however, having the advantage of a warm and genial aspect, whilst the other is exposed to one of an icy coldness. Again, whilst practising my profession at Martique, a neighbourhood peopled by fishermen and sailors, and remarkable for its swarms of children, I was often consulted by the inhabitants of Cape Couronne, which was not more than two leagues distant from Martique, for amenorrhœa and sterility. Now the elevated platform of Cape Couronne is precisely similarly situated in respect to its climate with the heights of Perinaldo." Fodéré, *Pathologie et Médecine légale de la stérilité*, Dict. des Scienc. Médic. p. 517. Of the different countries of Europe there is not one in which the reproduction of the human species is carried on more vigorously at the present moment, although in despite of many disadvantages, than Ireland. What are the peculiarities of its condition and those of its inha-

bitants? It is situated in a temperate climate. It is everywhere surrounded and bounded by sea, and therefore actually immersed in an equable and salubrious atmosphere. Its land is remarkable for its fertility. In respect to its inhabitants, it is at once obvious to common observation that their parent stock must have been hale and vigorous, and that their women are still naturally healthy and prolific. They lead in a great measure not only a rural, but even a Scythian sort of life; their cabins only serving to shelter them for a few brief hours out of the four-and-twenty from the occasional rains and abundant night dews incident to their climate. Their half-moral and half-barbarian habits are such as might seem not a little calculated to sustain the natural buoyancy of their spirits, to impart strength to their limbs, soundness to their constitutions, and a tone of rustic and adventurous bravery, and of a happy carelessness of consequences to the whole of their character and deportment. The enjoyments of the present moment, and the realisations of the immediate future, are in fact the essential constituents of the summum bonum of the true sons and daughters of Erin. Hence no doubt the great frequency, the almost universality, of their early marriages; and hence consequently and perhaps chiefly the remarkable and almost equally universal productiveness of their females. Simple in their diet as the invaluable esculent of their country, they can seldom anticipate any want absolutely essential to subsistence beyond the reach of their own personal resources; and therefore, without incurring any conscious liability to the charge of improvidence, they are induced at an early age to yield a willing obedience to the dictates of their youthful hearts; and to encourage them to proceed without delay to a further and more practical obedience at once to the same powerful dictates and to the first great commandment of Almighty God to our original progenitors, Genesis i. 28, they find the venerated functionaries of their religion ever ready, and even always eager to legalise their affiances by the required sanctions of their church.

Women are sometimes at the commencement of their sexual life abundantly endowed with the natural attribute of fecundity, who afterwards sustain a great diminution or even an entire loss of that power in consequence of injuries received during severe or mismanaged childbirths, or from one or more abortions or premature labours, from inflammations and ulcerations consequent



upon misconduct on the part of their husbands, or upon exposure to any impurities whatever capable of being propagated to the uterus, and competent when so propagated to disturb the organization or even considerably and permanently to vitiate the actions of that important viscus. Hence is it not at all an uncommon case for a young and apparently healthy woman to have one or two children, and then to become the subject of some irregularity of the menstrual function, or of a leucorrheal discharge, which she might never before have experienced, accompanied by pains about the small of the back, loins, hips, groins, upper parts of the thighs, or of the tissues more immediately referred to the interior of the cavity of the pelvis, and thus to be for ever afterwards condemned to a life of hopeless sterility. It is moreover a fact easily to be understood, that the lateral appendages of the uterus, including both the ovaries and Fallopian tubes, in common with that organ itself, are exceedingly liable to sustain injuries of the most serious character, both of their textures and functions, in consequence of the extreme pressure to which they are sometimes exposed during the presence and progress of a labour of great severity. How frequently do we hear our married female patients impute symptoms especially implicating their sexual health to the incidents of a former labour; identifying their commencement with the utmost distinctness and confidence with the date of the particular labour referred to!

Of the precise characters and specific results of ALL the injuries inflicted on the function of reproduction by the incidents of difficult and laborious births, we are scarcely yet in possession of sufficient knowledge to enable us to offer an adequate pathological enumeration. We are indeed but imperfectly acquainted even with such of them as authors have usually referred to the class of structural lesions; whereas we really know so little of any lesions of the function itself independent of corresponding and APPRECIABLE lesions of its appropriate tissues, that some modern writers have actually not hesitated to deny the very fact of their existence.

In cases merely of suspended or exhausted fecundity, the power being known to have previously existed, there can generally be no room for doubt as to the party on whom should be fixed the charge of unproductiveness. In many other cases however, cases for example of unprolific marriages from the commence-

ment, the medical attendant would practise his profession very partially and often very inefficiently, were he to limit his inquiries to the disqualifications of ONE OF TWO PARTIES, of whom the concurrence of both is equally indispensable to the production of the proper result. It seems therefore necessary that we should here append to the above enumeration of the more ordinary causes of sterility in the female, a brief sketch of the disqualifications for reproduction imputable to the male.

OF THE CAUSES OF SEXUAL IMPOTENCE IN MAN.—The causes of sexual impotence in man are principally, the absence or deficient development of one or more of the organs employed in the generative act; the absence or defective magnitude of the penis; some obviously inconvenient peculiarity of form, as that of an extraordinary curvature, or a preposterous size of the same organ; the absence of spermatic arteries, as was the case of a subject quoted by Riolanus; the want or insufficient development of the testes, as also scirrhusities and other disqualifying morbid affections of them; obstruction and obliteration of the vasa deferentia or of their ejaculatory passages by morbid thickening of their parietes, cicatrices, fungous growths from their mucous linings, or in consequence of pressure made upon them by calculous concretions contained within the bladder or in the prostate; spasmodic constriction of some part or of several portions of the generative apparatus, as is sometimes the case with persons of excessive sensibility and irritability; excess of ardour or of the orgasm of the venereal act; occlusion or an imperforate state of the urethra; an obstinate spasmodic contraction or stricture of the same passage; certain extreme forms of phimosis; certain varieties of hypospadias; as when the urethra, instead of being carried forward to the point of the penis, has its orifice near its root or on its dorsum, on its inferior surface, or on either of its sides; palsy of the ischio-cavernous muscles, whether from too much riding, as Hippocrates is said to have observed in this respect of the Scythians; Capuron, *Malad. des Femmes*, p. 258; or in consequence of injuries from falls on the back or on the sacrum; in short, all circumstances whatsoever competent to destroy or in any considerable degree to impair the functional powers of erection and introduction of the male organ and the consequent ejaculatory emission of the semen masculinum into the vagina. The practitioner should not be too hasty in pronouncing upon the absence or non-develop-

ment of the testes of which the presence may not be very apparent on a first view of the parts, as happens for example in some rare cases of original non-descent of these organs, and also occasionally in cases of certain diseases during the presence of which they have been known, even in adults, to have been retracted into the abdominal cavity. The absence or privation of one testis is not to be considered a cause of impotence. The author is acquainted with a gentleman who is now the father of a numerous progeny, who suffered a partial mutilation to this amount in his infancy. It has been reported that the Hottentots occasionally submit to be deprived of one of their testes, with a view to the improvement of their powers of agility.

OF THE TREATMENT OF STERILITY. — On undertaking the TREATMENT of a case of sterility, it should be made the first object of the practitioner to endeavour if possible to discover its cause. On the supposition of its being a variety of absolute sterility, and presumed to depend upon any structural impediment to the proper consummation of the sexual act, he will probably have received some general intimation of the nature of the case from the patient's husband. The greater number of cases of this class will be found to depend upon the presence of an unruptured hymen; and the remedy would consist in a crucial incision of the impeding tissue.

The author has more than once been consulted on account of extreme pain and difficulty encountered in the performance of the sexual act, by reason simply of more than ordinary contractedness of the inferior portion and external orifice of the vagina; the characteristic appearance of the remains of a hymen furnishing a sufficient proof of that structure having been previously ruptured. Difficulties of this kind are usually remedied by the use of tents, which however will not unfrequently require to be used, gradually increasing their size, for an indefinitely long time. In one case after the failure of a sponge tent, a failure however probably in a great measure to be imputed to some awkwardness in the mode of its application, the object was eventually attained by the introduction daily into the vagina of a round wooden instrument of about an inch and a half in diameter. The operation was at first attended with considerable difficulty; and although it was performed with the utmost caution and slowness, it failed not for the time to occasion to the patient a very painful sense of distension of the parts which it affected.



Any preternatural septa or fræna connecting the parietes of the vagina together in such a way as to cause mechanical obstacles to the due discharge of any of the proper functions of that passage, will generally admit of being removed by very simple operations of surgery.

In cases of absence of the uterus, there is also for the most part either the entire absence of a vagina or a very defective development of it. See a preceding article on the diseases of the vagina, p. 107. See also Baudelocque's *Midwifery*, translated by Heath, vol. i. p. 215. *Journal de Médecine*, tom. lxxi. p. 274. *Mém. de la Sociét. Méd. d'Emulation*, tom. ii. p. 470. *Comment. de Reb. in Scient. et Med. etc.* 1779. tom. xxiii. p. 155. *Morgagni de Sed. et Caus. Morb. Epist. xlv. Art. 12, 20, et 21.* This fact will be distinctly ascertained by passing a catheter into the bladder, and the index finger of the left hand into the rectum. In the event of the vagina and uterus being wanting, the catheter will be felt throughout its course along the urethra as easily and distinctly from the rectum as under the circumstances of a natural conformation of the parts it is usually felt from the vagina. Other indications might be here suggested to support the same diagnosis; as for example, some other peculiarities of conformation, viz. a deficient development of the mammæ, the growth of hair on the chest, a beard of almost manly strength on the chin and upper lip, an unfeminine harshness of the voice, an approach to a masculine character of the mind and its tastes and habits, and possibly a great indifference, or at best a cold sensibility, to the tenderest of all the heart's affections. A case made out as now represented would probably admit of no remedy.

Again, the vagina might be made up by the presence of preternatural growths and tumours, either adherent to its own parietes, or transmitted to it from its immediately adjoining organ, the uterus. The curableness of a case like this would depend upon the textural character of the morbid vaginal charge, and especially upon its connexion with the parietes of the vagina being such as to admit of its being safely separated from it.

Another variety of impediment, at least to a fruitful consummation of the sexual act, which ought not to be omitted to be noticed in this place, is an extreme contractedness or obturation of the passage through the mouth and cervix of the uterus. Mauriceau quotes several cases of sterility, which he imputed to

too much narrowness of the passage through the orifice and cervix of the uterus to admit of the transit of the semen masculinum. Mauriceau sur les Maladies des Femmes, Obs. 442, p. 366. Obs. 503, p. 417. Obs. 516, p. 428. Obs. 587, p. 484. Dr. Mackintosh, the late highly respected lecturer on midwifery and medicine at Edinburgh, for several years adopted a similar theory, and has assured the author that he has repeatedly accomplished cures of sterility and dysmenorrhea by effecting an artificial dilatation of the very narrow genital passage which forms the subject of the present notice. The only, or at least principal objection which the author has felt to this practice, is the difficulty he has almost in every instance encountered in persuading his patients to submit to it, whether he had suggested its adoption as a remedy for dysmenorrhea, or for sterility complicated with any morbid condition of the catamenial function. In other respects, and combined with other measures, it does not seem to be an unpalatable remedy. It seems, moreover, to be a matter of doubt as to how far the contractedness of the orifice of the uterus, provided it be supposed permeable at all, should be admitted into the list of positive causes of sterility.

As to the other impediment to the due transmission of the semen masculinum to its ultimate destination, just noticed as an occasional affection of the orifice of the uterus, viz. the total occlusion of it by a membranous septum, or any other variety of imperforate tissue stretching across or otherwise impermeably charging its lumen, it is obvious to observation, that it may prove remediable or not, as it may or may not admit of being removed by an operation. A mere membranous septum or frænum, however dense its texture or unrupturable by any moderate force of pressure, would of course in most cases admit of being treated by puncture, or some similar mode of efficient perforation. Cases are numerous recorded both of sterility and of diverse disturbances of the function of menstruation having been produced by carunculous and polypoid excrescences occupying the mouth and cervical passage of the uterus. Com. de Rebus in Scient. Nat. et Med. vol. ii. p. 24. Lips. 1753.

In the treatment of cases of this description, modern practice is indebted for many important advantages to the use of specula matricis. The improvements which of late years have been made in the construction of these instruments have been such, that by means of them the most delicate operations may now be performed

within the interior of the vagina, and on the vaginal portion of the uterus, including of course its orifice, and a part at least of the passage through its cervix, with much comparative facility.

The absence of a cavity within the body of the uterus, or obliteration of the natural passages within the Fallopian tubes, together with all other diseased states or defects of organization of the lateral appendages of the uterus competent to produce the second variety of absolute sterility already noticed, must be considered as being severally and equally beyond any means we possess of arriving at any correct knowledge of them, as they are beyond the reach of any known remedy. Thus limited as to the elements of his diagnosis, the obstetric practitioner finds himself obliged to undertake the treatment of all the cases of sterility appertaining to this section of its pathology, with the hope that they might prove to be, BUT SUBJECT TO THE UNCERTAINTY OF THEIR NOT BEING examples of functional, and therefore probably of curable barrenness. This no doubt is one great reason why the treatment of sterility is so often, and so much as it really is, an opprobrium medicorum. The treatment of relative sterility must accordingly very frequently proceed on exclusively the conjectural principles of its cause.

The influence of AGE on the faculty of reproduction has already been noticed. The susceptibility to conception is said to be most vigorous between the ages of eighteen and thirty. Very early marriages are observed in many cases not to be productive till after the lapse of a few years subsequently to their celebration, when they often become so. But late marriages, such for instance as we may suppose to be contracted, on the part of the female, between the ages of thirty-five and forty-five, are much less promising than very early ones; inasmuch as in the one case, the chances of issue improve with every year, whilst in the other they sustain a more than proportional diminution. The indications of treatment in both are in some respects founded on the same or very similar principles. They chiefly consist in the adoption of such measures as are known to be best calculated to promote and to sustain a sound state of the general health, and an accurate and well-balanced performance of the functional actions of the system. Cases of sterility presenting themselves at advancing periods of life, are usually considered to be much benefited by the frequent use of warm baths; a practice which probably originated from a notion now considered rather anti-



quoted, that the sterility in such cases is an effect of rigidity and diminished mobility of the generative organs, the removal or subduction of which the genial warmth and moisture of tepid bathing is well calculated to promote. Without insisting on the truth of this or any other hypothesis as to its mode of action, it is scarcely possible to attach too great a value to this important power as a means of improving the constitutional health of a feeble subject.

Again, it may be safely asserted, as a general principle, that a country residence is more favourable to fecundity than one in a large and luxurious town; whilst even of districts of the same country, some are undoubtedly preferable to others, on account of their greater salubrity. It would appear from the more recent population returns for England and Wales, that the most healthy districts of this country, at the present moment, in which therefore human life, on the average scale of the population, is protracted to the longest period, are, Cheshire, Flintshire, the Isle of Anglesea, Pembrokeshire, and Carmarthenshire. It has often been observed, that women who have had no children while resident in towns, have become immediately prolific upon going to live in the country. A respectable lady, who has resided for many years in New South Wales, informed the author a short time ago, that she had known many instances of females who had ceased to bear children in Europe, becoming the mothers of second batches of children subsequently to their emigration to Botany Bay; adding, that the fact was so notorious that before she left that country it was become the subject of current observation at Sidney.

The kinds of food best adapted for the choice of females wishing to be blest with families, should no doubt vary to a certain extent according to diversities of circumstances. Women of spare habits and rigid fibres, should be encouraged to prefer such foods as are presumed most effectually to unite nutriment and succulency. It is understood, or rather it is pretty well known, that the red meats, viz. those of beef, mutton, and venison, contain most nutriment, bulk for bulk. The most important part of a succulent diet should consist of milk. Women inclined to obesity, and at the same time desirous of escaping from the predicament of being unfruitful to the embraces of their husbands, should almost entirely confine themselves to dry food, abstain religiously from the use of fermented and spirituous liquors, and

accustom themselves to sparing quantities of drinks and fluid foods of every kind.

They should moreover take abundance of personal exercise in the open air ; a duty which indeed they should practise, properly clad and protected, in almost all kinds of weather.

The most frequent functional cause of sterility is probably an imperfect or morbid performance of the function of menstruation. The reader is already well acquainted with all the lesions of this important function. *Causa sublata tollitur quoque effectus*. To effect their subduction or removal might indeed be beyond the reach of his art. But such, nevertheless, should be the object of his most strenuous endeavours to accomplish. See the treatment severally recommended in the preceding articles of amenorrhea, dysmenorrhea, metrorrhagia chlorosis, fluor albus, and hysteria.

It has been rather a favourite practice with writers on this subject to insist upon a more than ordinary coldness of the sexual temperament of some women, and to speak of a want of due ardour of their amorous passions, and even sometimes of their total indifference or disgust for the endearments and obligations of connubial life, as an efficient and no unfrequent cause of sterility. This class of writers has also naturally enough recommended for remedies in such cases, the adoption of measures immediately calculated to raise the tone of the sexual passion by inflaming the imagination, such as mixing in gay society, reading sentimental books, visiting plays and spectacles, where the human figure is displayed in its most beautiful forms and most graceful movements, etc. It was on this principle that the late Dr. Graham of empirical celebrity offered to sterile ladies and their husbands the boasted use of his temple of health and celestial beds. But such practices are founded on theories of the occasional causes of barrenness too narrow and superficial. It is more worthy of the scientific physician to push his inquiries beyond the mere fact of the coldness of temperament here foisted on our attention as a principal cause of sterility. Morbid atony of a natural passion must itself have a cause, and a cause very frequently to be discovered by a careful and skilful inquirer into states of delicacy of the general or sexual health, or perhaps in certain peculiarities of physical condition or of physico-moral or social relationships of its subject. An adequate professional analysis of a case of this description would therefore necessarily include among its objects the ascertainment of the ages singly and comparatively both of the lady and her husband ; that also of their healths respectively

both before and after marriage; something of their domestic habits as to the existence or absence of mutual affection; the habits of the husband as to sexual morals, and of both as to the use of spirituous and fermented liquors, and as to indulgences in any other profligacies and debaucheries subversive of good health, and unfriendly to the interests of fecundity. That women like men are differently constituted as to the amount of their natural appetencies for the pleasures of sexuality there can indeed be no doubt; but accessionally to this cause of barrenness there is often some other more remote, which perhaps it would be more competently and exclusively the duty of the practitioner to discover and to attempt to remove.

The older writers have strongly recommended the use of many substances, both dietetic and medicinal, as antaphrodisiacs, which are now believed to be possessed of little or no virtue; for not to mention a long list of antaphrodisiacs and antaphrodisiac practices derived from magic and witchcraft, which the reader may consult in an essay on sterility by Sennert, vol. iii. p. 109, and which are quoted by that author with perfect gravity, as remedies of barrenness; it has not been unusual with writers, of the two last centuries, to recommend the use of diverse messes, partly medicinal and partly dietetic, having in their compositions pignut, celery, and carrots; several of the alliaceous plants, as garlick, onions, and especially leeks; sage, which in ancient Egypt was considered the most powerful of all antaphrodisiacs; chocolate and coffee; amber, musk, opium, and cantharides; to which they have added as general auxiliary measures equitation and flagellation; and of later years electricity. The only actual stimulants however of the reproductive faculty, for such they are more entitled to be called than remedies of impotency and sterility, are such medicines and measures as are calculated either to excite the genitals and the organs immediately contiguous to them, as are probably the alliaceous roots, some of the substances called antispasmodics, the *uva ursi*, cantharides, equitation, and electricity in the form of small shocks passed through the region of the pelvis; and those which are calculated to improve the health and strength of the general system, which are for the most part included under the three principal heads of alteratives, tonics, and tonic measures, the varieties and modes of administration of which have already been amply detailed in several preceding articles of the present work.



## CHAPTER VI.

## OF PECULIAR CONFORMATIONS AND STRUCTURAL DISEASES OF THE UTERUS.

OF THE CONGENITAL ABSENCE OF THE UTERUS.—A few remarks on the occasional absence and malformations of the uterus, can scarcely be deemed an inappropriate introduction to a consideration of its manifold and most important structural diseases. It has almost always happened, that when the uterus has been ascertained to have been wanting, there have appeared in the external conformation of the individuals so circumstanced, certain peculiar manifestations indicative of the imperfect condition of their sexual organization. These are observed to consist either in a defective development of organs and of forms peculiarly feminine, or in the manifestation of forms, complexion, attributes of parts, and of the general character of the entire being, more or less appropriately or decidedly masculine. Thus are persons congenitally without uteri, if they live long enough to arrive at adult age, that *tertium quid* variety of our species, scarcely women in appearance and certainly not women in fact, that are usually called *viragines*; that is, as the term imports, women having the resemblance of men. The resemblance in question, however, is in most cases but very imperfect. The *mammæ* indeed are not more developed than those of men. Persons of this conformation have also generally a beard, which greatly exceeds in strength that of the soft and almost invisible down which is seen so lightly sprinkled over the lateral and inferior parts of the female face; but which usually is neither so strong nor so thickly set as the ordinary beard of the adult male subject. The chest and shoulders are broader than those of a well-formed woman. The projections at the hips are also less considerable than those considered most beautiful in the architecture of the female figure. The voice is neither a good treble nor yet a tenor; and when a counter-tenor, its tones are destitute of all pretensions to sweetness. It moreover forms a part of the description of these poor subjects of the doubtful gender, that, in their tastes and general habits, they are more addicted

to the valiant and even laborious pursuits of men than to the lighter, more domestic, and less adventurous occupations of females. Their external genitals are usually but slightly developed, and, for a reason which will presently appear, they are often utterly destitute of the reproductive passion and its attendant affections as they properly appertain to either sex. The subject of congenital absence of the uterus, however interesting by reason of its curiosity, is one which on account of its being absolutely devoid of all practical tendency beyond its mere conduciveness to promote the interests of correct diagnostics, does not admit of being made the theme of any lengthened remarks. Any reader who may feel a wish to make himself familiarly acquainted with its minuter details, may easily do so by consulting at his leisure the following recorded examples of it.

Columbus de Re Anatomica, lib. xv. p. 495, gives the case of a woman, whose external genitals were regularly constituted, in whom he found neither uterus, nor ovaries, nor Fallopian tubes. Bousquet, Journ. de Méd. Paris, 1757, tom. vi. p. 128, saw in a fœtus the womb and urinary bladder wanting. Meyer, in Schmucker's Verm. Chirurg. Schriften. Band. ii. s. 299, had occasion to examine the body of a soldier's wife in which he found neither vagina nor uterus; but in their stead a loose skinny sort of substance which passed off from the peritoneum and filled up the vacant space. To this were fastened the Fallopian tubes and ovaries. The labia pudendi and clitoris were very small, and the nymphæ were entirely wanting. Klinkoseh is reported, Dissert. de Utero Deficient. auctore G. Hill, Pragæ, 1777, to have met with a case of congenital absence of the uterus in the body of a woman who had never menstruated, in which also the vagina was closed from coherence of its parietes, and there were not found any ovaries, nor Fallopian tubes, nor ligaments. In another case quoted by the same author, the external genitals were perfect, and there were present likewise the ovaries and Fallopian tubes; the uterus alone being wanting. Engel. Dissert. de Utero Deficiente, published a case of the entire absence both of the uterus and the vagina, in which however all the other generative organs were perfect. It has been observed that the subjects of congenital absence of the uterus, if left possessed of ovaries, have usually retained either partially or wholly the external distinctive attributes of the female sex, as well as its characteristic passions and affections. In illustration of this

fact, see Walther, *Dissert. de Obstetricorum Erroribus*, Lips. 1729, § 7. Morgagni, *Epist. xlv. art. 13. Imperforatæ mulieris uterum prorsus Carentis Observ. Anatomic. Cremon. 1744*, Auctore D. Fromond. Theden, in *Nov. Act. Curios. tom. vi. obs. xx. p. 105.* Hemmann's *Medicinisch. Chirurg. Auffätze*, Berlin, 1778, s. 244. Boyer *Mém. de la Société Médicale d'Emulation*, tom. ii. n. 19. See also *Recueil Périodique de la Société de Méd. vol. vi. p. 128.* Voigtel, *Band. ii. p. 452.*

OF DEFECTIVE DEVELOPMENT OF THE UTERUS.—Deficient development of the uterus is usually accompanied by the same peculiarity of conformation of other parts and of defects of sexual character as have been observed to attend the total absence of that viscus. Of this variety of malformation there are not many cases recorded. The following notice of one, communicated to the Faculty of Medicine by M. Cloquet, may serve to give the reader an idea of the amount of deficient development most frequently occurring in cases of this kind. “M. Jules Cloquet has presented to the society of the faculty the sexual organs of a young woman, twenty-two years of age, who had never menstruated, who had the appearance of never having arrived at the state of puberty, and who died of a polypus in the nostrils, complicated with a carcinomatous affection of the right lachrymal gland. The uterus, which was pale and discoloured, was adhering to the posterior surface of the bladder, and was not larger than that of a child of a year old. The ovaries and Fallopian tubes were, on the contrary, quite developed; but the vagina was very small. The remarkable smallness of size of the uterus in this case is not to be imputed to any reduction of its bulk from atrophy, but to a want of increment of its proper tissue from an early age, whilst the surrounding parts proceeded as in ordinary cases to be developed.” *Journal Général de Médecine*, tom. lxx. p. 274.

OF DOUBLE UTERI.—Double uteri furnish us with an example of malformation, much more frequently, than we meet with examples of its entire absence. The duplicate conformation has presented itself under three different varieties. See Voigter's *Handbuch der Pathologischen Anatomie*, Band. iii. p. 453. Either there is one uterus, with a single uterine aperture and one vagina, the space allotted to the uterine cavity being divided into two parts by a distinct membranous septum; or the body of the womb is found to consist of two parts perfectly distinct



and separate from each other, but uniting in a common aperture into a single vagina; or there are two uteri distinct and separate throughout, each having its distinct opening, and each communicating with its appropriate vagina. In a few cases, both uteri have had a single vagina in common. Voigtel observes, that in the first two varieties there are found only two Fallopian tubes and two ovaries; BUT THAT IN THE TRUE DOUBLE UTERUS these organs are also double. As to the special genuineness of a double uterus here assumed, the author has not found that a single example of such a case has ever been reported; and he therefore agrees perfectly with Dr. Robert Lee, *Medic. and Chirur. Transactions*, vol. xvii. p. 475, that “without an exception, the uterine appendages have been simple, or have consisted of one ovarium and one Fallopian tube annexed to each corner of the uterus, and not of two ovaria and two Fallopian tubes, as the term double uterus would seem to imply.”

For the following references to published cases of double uteri, the author is almost exclusively indebted to Voigtel. *Messis aurea Anatomica*, Hemsterhui Auctore, Heidelberg, 1659. tab. viii. Bonet. *Medic. Septeintz. collat.* vol. ii. p. 6. Bauhin. *Fr. Rousset. de part. Cæsar.* Basl. 1552. Peyer, *Miscell. Nat. Curios.* decad. ii. an. 2. obs. cxi. p. 267. Hartmann. *Miscell. Nat. Curios.* an. 5. obs. lxxviii. p. 147. Sennert. *Pract. Medic.* lib. iv. pt. i. § 2, cap. 9. Palfyn. *Descript. Anatomiq. des parties de la femme qui servent à la Generation*, tab. vii. fig. 1—3. Syncei. *Hist. Mexican.* p. 547. Dionis, *Cours de l'Anatomie de l'Homme*, p. 39, et *Ephemerid. Germanic.* dec. ii. an. 2. in appendice. Paulini, *Ephemerid. Germanic.* dec. ii. an. 5. append. obs. cviii. p. 68. Hummel, *Commere. Literar. Norimb.* 1733, *Hebdom.* xx. p. 196. Saviard. *Nouveau Recueil d'Observ. Chirurg.* p. 398. Perrin. *Journ. de Méd.* 1760, tom. iii. et *Samml. Auserles. Wahrnehmung*, b. iv. sect. 245. Haller. *Opusc. Pathologic.* obs. lx. p. 152. *Progr. de renib. monstros. et uteri duplici Observationes*, Götting. 1750. *Element. Physiolog.* tom. vii. pt. ii. p. 57. *Comment. in Prelect. Boerhaavii*, tom. v. § 2. *Icon. Anat. fasc. ii. fig. 2.* Gravel. *de Superfoetatione in Halleri Collect. Disput. Anatom.* vol. v. p. 385. Valisneri *Opp.* tom. i. p. 357. Baggart. *Traité Pratique de l'Hydropisie et de la Jaunisse*; auquel on a joint *Observ. Anatomiq. par M. Marquet*, p. 144. *Hist. de l'Acad. des Sciences*, 1752, p. 111. *La Marche, Instruct. familières et utiles aux sages-femmes pour bien pra-*

tiquer les accouchemens, tom. i. fig. 1, 2. Cruger's case, communicated by Morand, Mémoires de l'Acad. des Sc. 1743, p. 86. 119. De Sue's case, Mém. de l'Acad. des Sc. 1746, p. 43. Maii, *Commerc. Literar. Norimb.* 1733. hebd. 25. Huerfleisch *Physiolog. th.* iii. s. 404. Forlani *Rarior. obs. medic. pract. anatom.* p. 24. Boes. *Uteri per morbum bifidi exemplum*, Lips. 1779, über in Weiz N. *Auszug.* b. xi. s. 95. Walter, über die geburtst. des weibl. Geschlechts, fig. 3. *Nouv. Mém. de l'Acad. des Sc. à Berlin*, 1774, p. 81. Boesfleisch in *Act. Academ. Mogunt.* 1761, vol. iv. p. 451. Lentfrink. *Geneesk. Tydschrift.* d. i. p. 269, et seq. Osiander *Annalen*, b. i. st. i. s. 213. *Commerc. Literar. Norimb.* 1738, p. 164. *Comment. Lips.* vol. xvii. p. 51, 688. *Acta Med. Berol. decad. i.* vol. xiii. p. 431. *Medic. and Philosoph. Comment.* vol. i. p. 432. Baddinger's *Neues Magazin für Aerzte*, b. iv. s. 65. *Comment. Lips.* vol. xii. p. 79. Three cases by Phil. Fr. Meckel. *Journal für anatomische Varietäten feinere und pathologische Anatomie*, band i. et heft i. Halle. *Philosoph. Transactions*, vol. iii. p. 209.

OF MALPOSITIONS OF THE UNIMPREGNATED UTERUS.—Many of the lesions of position of the uterus, relatively to the pelvis and to its contiguous organs, are affections of it common to its several conditions of vacuity, pregnancy, and puerperal state. Such for example are all its degrees of prolapsion, and some of the forms of its extra-abdominal protrusions; whilst others are peculiar to special conditions of it, as retroversion to that of pregnancy and to similar states of development from other causes; and inversion almost exclusively to its puerperal state.

The principal malpositions of the uterus in its unimpregnated condition are, its prolapsion, anteversion, and extra-abdominal protrusion. Of all these, prolapsion is beyond comparison the more frequent variety. Most practical writers in this country have placed the several forms of prolapsion of the uterus under the three subordinate heads of descent, prolapsion, and procidentia; whilst in France and other countries on the continent, an analogous distribution of the same subject has prevailed under the corresponding designations of relaxation, descent or semiprolapsion and precipitation. To express these three several stages of subsidence of the uterus, the author prefers for his own use the distinctive terms of DESCENT, to signify the first stage or that of simple bearing of the womb upon an inferior portion of the vagina more than is natural to it; PROLAPSION, to indicate the second stage,

or that of the engagement of the same part of the uterus within the vaginal orifice; and *PROCIDENTIA*, to express the third and last stage; namely, the protrusion of the entire uterus out of the pelvic cavity, carrying along with it of course in an inverted state, either a part or the whole of the vagina. Inasmuch as morbid subsidence of the womb from its proper relative situation in the pelvis, in all the degrees now enumerated, is an affection of that important organ as much during pregnancy as during the absence of that state, and as the pathology and treatment are also nearly the same in both cases, it seems convenient that we should discuss the whole of the subject under the present article, with the exception only of cases of *procidentia uteri* at advanced periods of gestation, or in actual complication with the puerperal state.

OF DESCENT OR FIRST DEGREE OF MORBID SUBSIDENCE OF THE UTERUS.—The reader is no doubt aware that the unimpregnated uterus is usually suspended within the pelvis at a given average level relatively to the depth of that cavity. In cases of descent it of course sinks below that level; the amount of the subsidence varying in different cases, but seldom exceeding a range of two inches and a half; a range not sufficient it is presumed to occasion any material change in the direction of its longitudinal axis. In its natural position the vaginal portion of it is so situated that its projecting extremity can scarcely come in contact, or at all events, into painful collision, with the parietes of the vaginal passage: whereas upon losing its proper level in the pelvis, such a collision is an early and an inevitable consequence. The other more immediate effects of the descent in question are a puckering and relaxation of the upper part of the vagina, a close investiture of the sinking uterus by its middle and inferior portions, a sense of inconvenience and irritation of the surfaces thus teased and incommoded, and a shortening of the entire vaginal tube directly proportioned to the amount of dislodgement of the uterus from its natural position within the pelvis. The more remote effects are, a leucorrhœal discharge from excessive excitement of the muciparous glands of the vagina, impeded or painful micturition from pressure of the bearing-down uterus upon the neck of the bladder, and sometimes tenesmus from a similar pressure of the same organ upon the rectum.

*PROLAPSION*, or the second degree of the same lesion of position of the uterus, is that in which the vaginal portion of it may be



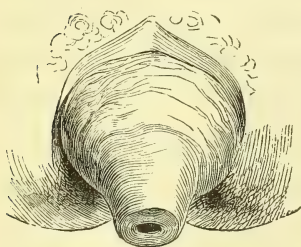
seen to project through the os externum, and to make its appearance within, or even beyond the level of the labia majora pudendi. The womb in this case occupies the inferior part of the cavity and an anterior portion of the outlet of the pelvis; and its body is almost everywhere invested by a double covering of vaginal structure; viz. first by the superior portion of it, with the extremity of which it is immediately adherent, and which it therefore cannot fail to take along with it reflected and inverted towards the outlet of the pelvis; and secondly, by so much of its middle and inferior portions as may remain unreflected, and continue to retain their accustomed relations to the parietes of the pelvis at and near its outlet, and to the tissues naturally connected with the lower part of the pelvic cavity. The uterus, when thus prolapsed, is obviously forced to assume an identity of axis with that of the inferior aperture of the pelvis. The body of the uterus is felt to produce a painful sense of pressure, as from a bulky body on the parts about the perineum and recto-vaginal septum, as also on the neck of the bladder and the urethra, accompanied by painful micturition and tenesmus. In this form of her disorder, the patient complains of dragging pains at the groins, and of dull aching pains about the small of the back and of the sacral and vesical regions of the pelvis, and sometimes of the loins and upper parts of the thighs; the former no doubt in consequence of the several sets of ligaments and membranous fastenings of the uterus being put violently upon the stretch, and the latter probably on account of the pressure which the sacral nerves are especially liable to sustain from some of the severer forms of prolapsion of the womb. As long as the patient may choose to confine herself to a strictly horizontal position during this state of things, she for the most part experiences much mitigation, and in many cases almost absolute suspension of her sufferings. The surfaces about the vulva are usually considerably inflamed, and often much suffused with a muco-purulent fluid.

The third and last stage of malposition of the uterus by simple descent, is what we call its *PROCIDENTIA*, or entire protrusion out of the pelvic cavity. In this form of the malady the vagina is more or less perfectly inverted, hanging pendulous between the thighs, furnishing a covering to the greater part of the prolapsed uterus, and also occasionally to its lateral appendages, and even sometimes to retroverted portions of the bladder and to extensive convolutions of intestines. A moderate amount of this variety of

prolapsed uterus may be seen exceedingly well represented in our Atlas, pl. x. fig. 2, the first figure in the same plate being a representation of a very extensive prolapsion and inversion of the vagina unaccompanied by any VISIBLE protrusion of the uterus. The accompanying wood-cuts illustrate the same conditions.

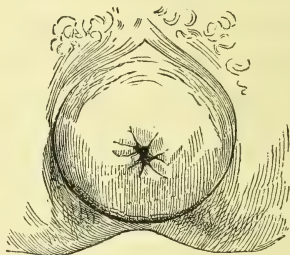
No. I.

Moderate prolapsion.



No. II.

Extensive prolapsion with inversion of the vagina.



A case of procidentia uteri, complicated with inversion and protrusion of the whole of the vagina, and prolapsion into the cyst of the tumour so formed of the greater part of the bladder together with a large tract of intestine, including nearly the whole of the ileum and about four inches of the rectum, is represented in the Atlas, pl. x. B. fig. 3. The case was that of an old woman, of seventy years of age, who had been the subject of procidentia uteri for many years. For about ten years she stated that she had worn a pessary, of which however, by reason of its having from time to time greatly annoyed her, she had, during the last fifteen years of her life, entirely declined the use. When the author was first consulted in her case, she was little better than moribund, and she died on the following day. On inspection of the body, the outside of the tumour presented the appearance of a thick brownish integument, which seemed sound and firm, excepting at two places, as indicated at d and e, where superficial ulcers had recently formed; the consequence probably of diminished attention to cleanliness. On cutting carefully open the investing vaginal tissue of the tumour, the retroverted bladder, containing about ten ounces of urine, came into view. Beyond and below the bladder were the uterus and its appendages closely packed together, and at many points mutually cohering, as if from the effects of a former inflammation; for at that time they were devoid of all appearance of inflammation. Superincumbent on the parts already named were the prolapsed portions of the

ileum and rectum, both of which were exceedingly inflamed and partially gangrened. On removing some convolutions of intestines which prolapsed into the pelvis, the lateral and posterior surfaces of that cavity, the latter more especially, presented a very curious appearance. It was that of their having been broken as was conjectured at some antecedent period by innumerable lacerations of their proper peritoneal covering, and afterwards attempted to be healed by very rude efforts of the processes of ulceration and cicatrization. The most depending part of the cavity, which in the horizontal position of the subject seemed pretty accurately to correspond with the middle of the hollow of the sacrum, was at first concealed from the operator's view by an accumulation of about two ounces of an offensive dark greyish-coloured purulent fluid, on the removal of which the same irregularity of the surface presented itself as had been previously exhibited by the immediately adjoining surfaces not covered by the effused fluid.

OF THE CAUSES OF DESCENT AND SUBSEQUENTLY OF THE MORE ADVANCED FORMS OF SUBSIDENCE OF THE UTERUS.—The proximate cause of these malpositions of the womb is principally, as it appears to the author, a reduced power of the suspensory ligaments of the uterus, and secondarily a state of relaxation of the vaginal parietes. In the opinion of some writers, the latter circumstance should be deemed of itself a sufficient proximate cause of prolapsion of the uterus. But is this doctrine entitled to the credit even of plausibility? An organ susceptible of development to an almost indefinite extent as the vagina is, can scarcely have been intended to maintain a degree of contractedness sufficient to enable it to sustain the uterus in any fixed position. The vagina moreover is most ample where the hypothesis now questioned requires it should be most contracted.

The predisponent causes which we can suppose most to conduce to prolapsions of the womb are, an original slenderness and delicacy of conformation of the ligamentous and membranous tissues, on which nature has devolved the office of suspensors of that organ; feebleness of tone of the same tissues, coincident with feeble general health and delicacy of constitution from whatever cause; and the reduced functional power to which they are especially liable during the puerperal state, in consequence of the prodigious elongation and other constituent changes which they have to sustain during the latter months of gestation. That



great delicacy and slenderness of the uterine ligaments are results of original conformation, may be inferred from the fact, that virgin subjects, and even very young children, have not always escaped the miseries incident to prolapsions of the uterus. A well-marked case of this description occurred some years ago in the case of a lady's-maid, of about nineteen years of age, and of somewhat delicate health and constitution. Her mistress, perceiving her indisposition, it being accompanied with great depression of spirits, induced her, after much persuasion, to take the opinion of her own physician upon her case. She complained of a sense of great bearing down at the outlet of the pelvis together with a protrusion of a fleshy body at the vulva, which a midwife in the neighbourhood had told her must be a polypus. It was principally this information that had occasioned the extreme depression of spirits which had excited so much alarm. Upon a proper examination being instituted, it was easily ascertained that the substance presenting at the vulva was a considerable prolapsion of the uterus. The patient was the daughter of one of her master's tenants in the country, and had been very carefully and virtuously brought up. When she left the country she was in good health; but when she came to London her catamenia became suppressed, and remained suspended for many months subsequently. At length, however, that function was gradually re-established, but subsequently its periods were exceedingly tedious and painful. On these occasions the patient was often under the necessity of making use of very strong bearing-down efforts. Add to this state of things the fact, that she had been subject, during the whole of her residence in London, to a most obstinate constipation of the bowels; for the emptying of which she acknowledged that she had often made use of the most strenuous propellent efforts. It was indeed on one of these occasions, she further stated, that she first felt any remarkable pressure upon the parts forming the orifice of the vagina.

The reader will find recorded in the third volume, p. 282, of the *Edinburgh Medical Essays*, a case of prolapsion of the womb in a child of only three years of age. Several cases of *procidencia uteri* are also noticed by Mauriceau in very young and unimpregnated subjects. *Observations sur les Accouchemens*, etc. tom. ii. obs. xevi. p. 70.

M. Saviard, in his *Surgery*, cites several very interesting cases, of which the following may be considered as having an

obvious bearing on the point of pathology now discussing: "A girl, aged twenty-five, had been troubled with a descent of the uterus, without being once reduced, for twelve years. The tumour thus formed was of the size of a melon. She was bled and purged, and the part was fomented. Then I applied myself to the reduction of the tumour, in which I found abundance of difficulty. At first I endeavoured to reduce it by myself; but not succeeding, I desired the assistance of another surgeon, who was very useful on this occasion; for, not being able to retain what I had thrust back with both my hands, his and mine alternately supported what was reduced till the reduction was absolutely completed. But, as she complained of a difficulty in making water after the operation more than she had done before, I thought proper to sound her, and found that there was a stone in the bladder. This stone, which was afterwards extracted, was very large: whence we may conclude that she had been troubled with it a long time, and that this extraneous body might have been the cause of the descent of the womb. Be that as it may, she perfectly recovered of both diseases, wearing a steel pessary however, such as I have described before." Saviard's *Observations on Surgery*, p. 43. It is worthy of remark, that the same able writer, in his case of Marguerite Malaure, takes occasion to state, that he had been obliged to have recourse to the use of pessaries in several other cases, both of very young and unmarried subjects, and of women of more advanced age, but devoted to the obligations of a religious celibacy. De Graaf, see *Mad. Boivin* and Dr. Duges' work already referred to, tom. i. p. 86. speaks of four young subjects whose virginity could not be considered equivocal, whom he had treated for prolapsus uteri by astringents and the use of pessaries.

The author thinks it quite unnecessary to go into any detailed consideration of the hypothesis of Dr. Van Paddenburg, as published by a Society of Surgeons at Utrecht, 1767; which maintains the principal proximate causes of descent of the uterus to be relaxation of the sacro-ischiatic ligaments, and that of the constrictor muscles of the orifice of the vagina. The sacro-ischiatic ligaments are not, in the author's opinion, of a nature to become the subjects of so much relaxation as could answer the purpose of this hypothesis; whereas the first degree of descent of the womb may take place without its reaching, or at least without its impinging painfully upon, the contracted outlet of the

vagina. Comment. de Rebus in Scient. etc. Supplement. 2, dec. ii. 1773. Lipsiæ, vol. ii. p. 372.

OF THE OCCASIONAL CAUSES OF DESCENT OF THE UTERUS.—Descent of the womb of the first degree has been designated by some French writers by the very term RELAXATION, without reference however to any tissue or part to which the term when so used might be supposed to apply. It is known that, in nine cases out of ten, prolapsion of the uterus is an early consequence of the events of parturition, and that it first exhibits itself under certain well-ascertained circumstances of the puerperal state; which circumstances have been observed to be, either getting up, and resumption on the part of the patient of her usual exercises and occupations, at an unreasonably early period after her delivery, or a less early resumption of those duties in a delicate or feeble state of health. The mere tyro in the anatomy of gestation must know what prodigious elongation the lateral ligaments, and indeed all the proper ligaments of the uterus, have to undergo, during the latter weeks and months of pregnancy. Essential to the success of this process would appear to be an increased succulency and vascularity of the same tissues; or, in other words, a reduction of the natural density and firmness of their texture. But during their state of extension and succulency as here supposed, they must obviously sustain a corresponding diminution of their special power as suspensors of the uterus; whilst indeed during the latter months of gestation, that power can only very slightly be called into action; the uterus at that period being chiefly indebted for its support to the incumbency of its lateral and inferior parietes upon the brim and expanded iliac surfaces of the pelvis. No sooner however is the great business of parturition accomplished, than the uterus contracts and is reduced to a volume sufficiently inconsiderable to admit of its sinking into the pelvic cavity, provided the patient were to place herself in a position calculated to favour that result. During the first days and weeks subsequently to delivery, the same process of contraction of both the uterus and its appendages, and especially its ligaments, is continued; but it is not considered as completed until after the lapse of about seven weeks from the date of the delivery. If during the currency of the earlier part of that period, and indeed during that of any part of it in a case of peculiar delicacy of constitution, the patient should be induced to sit up many hours a day, to stand for any length of time, to walk up and



down stairs, or to occupy herself in pursuits especially calculated to favour an accident of that kind, she would certainly expose herself to a very great risk of becoming a subject of descent of the womb. And what is the explanation? Why, obviously, that nature requires a part or the whole of that period to restore the uterus to its usual size in the absence of pregnancy, and the suspensory ligaments to their natural tone, dimensions, and suspending powers.

Added to the other influences of mismanagement of the puerperal state which we find reported in books, as causes of prolapsion of the uterus, we meet with many examples of VIOLENT PROCEEDINGS ON THE PART OF MIDWIVES as having been productive of that effect. A woman twenty-eight years of age, after being attacked with a malignant fever, experienced a complete procidentia of the uterus. After a tedious use of fomentations to the prolapsing tumour, and various sorts of cataplasms to the chest, and to the sacrum, etc., of which the materials, for the most part herbaceous and demulcent, are enumerated with great parade, the reporter of the case proceeds to state that he eventually succeeded in accomplishing the reduction of the protruded uterus, and that that result was so prosperous in the issue, that in the following year his patient "brought forth a strong living child, AFTER WHICH THE UTERUS CONTINUED IN ITS PLACE." Joh. Adam. Gensel, M. D., in *Actis Eruditorum*. Lipsiæ, 1716, p. 224.

"Anna K., of the village of Schwamendingen, æt. 34, in the eleventh week after a puerperal confinement, complained of heat of her head and face, thirst, loss of appetite, etc., and also of prolapsion of the uterus; which had been produced, as she represented, by VIOLENT EFFORTS MADE BY HER MIDWIFE to extract the placenta, which subjected her to a great deal of pain and heat. By my advice she used a bath of traumatic herbs for three weeks; and by the application of a pessary she was completely cured." D. Joh. de Muralto. *Ephemerid. Germanic. dec. an. 1*, p. 278. Norimb. 1682.

"In the year 1681, D. D. Richter, M. D., dissected, in my presence, the body of a young woman, the wife of Andrew Thielens, who had been cruelly treated by her midwife. The patient was in labour of her first child at the time of the accident. Her ignorant attendant, rashly suspecting that there was a second child, pulled violently at the uterus, by which she completely

inverted it, and caused her patient's death." D. Christ. Seliger. in *Ephemerid. Germanic.* dec. ii. an. 1, p. 344. Norimb. 1682.

Next in frequency to the cases above referred to as examples of descents of the womb consequent upon mismanaged labours and neglect of proper precautions in the puerperal state, are prolapsions and protrusions of the uterus during gestation, imputable to the greater weight of the womb in that state; but generally requiring the concurrence of a previously reduced tone of the suspensory ligaments from many former gestations, labours, and abortions. From the increased bulk and weight of the uterus at that time most women become, in a slight degree, the subjects of descents of it during the earlier months of gestation. But when the organ, during the progress of its development, effects its ascent into the abdominal cavity, it acquires a security of situation above the brim of the inferior pelvis, in consequence of which it cannot readily prolapse. In ordinary cases, and in healthy subjects, and still more especially in first gestations, such is the entire amount of descent to which the gravid womb is subject. But far otherwise is the case with women whose general health and constitutional strength have been broken down by frequent and numerous-repeated gestations.

Of women who become the subjects of severe and protracted prolapsion of the womb in their first pregnancies, there are scarcely any recorded examples; excepting, indeed, from the concurrent influence of some other obvious occasional cause; as in the following case, published by Desgranges.

"A young lady, aged nineteen, when she was gone three months in her first gestation, became the subject of prolapsion of the uterus, in consequence of a fall which only brought her down on her knees. The pregnancy went on, and had the effect, for a time, of relieving the malposition of the uterus. But after delivery the womb prolapsed again. She was more or less harassed with this local affection for six years, when M. Desgranges was consulted in the case. Upon examination, he found a prolapsion of the uterus; that organ indeed protruding at the external parts, complicated with an unusual elongation of its anterior lip. This enlargement, which was of a roundish form, and smooth, having some resemblance to a glass pestle, was supposed to be of the same structure with the uterus itself. It was without pain, and without sensibility. It was, however, attended

by one very important inconvenience, viz., that it prevented the proper adjustment of a pessary, which on this account could not be worn. After enumerating a variety of pessaries recommended by authors, most of which were tried in vain in this case, the writer suggested a kind of ring pessary, made in such a way as to have two floors, the one having an ascent to the other, the anterior one lower than the posterior by a depth equal to the length of the carneous column protruding, as already described, beyond its proper local relation to the posterior lip of the uterine orifice." Communicated by M. Desgranges, graduate of the Royal College of Surgery at Lyons. *Journal de Médecine*, etc., tom. lix. p. 343.

For cases in illustration of the influence of gestation in producing prolapsion of the uterus in cases of predisposition to such descents, occasioned by pregnancies, labours, and miscarriages, the author begs to refer to the private notes and recollections of all his more experienced readers.

If comparatively slight accidents are competent to produce permanent malposition of the womb, as was the case in the narrative just quoted, what might we not expect as results of severer shocks, heavier falls, and of greater violence, and at the same time applied to subjects more predisposed? But, in the predisposed, even lighter occasional causes of this kind are often sufficient to produce the effect. Cases in illustration are quoted in the 4th edition.

It seems more than probable that prolapsions of the uterus are often results of a complication or of a series of several causes applied in succession. This point is well illustrated in a case reported at great length by Dr. Thomas White of Manchester in the *Medic. Observations and Enquiries*, vol. iii. p. 1769.

Added to these morbid constitutional influences as so many causes of descent of the womb, we have to notice the more direct mechanical effect of structural enlargements of that organ itself, or of its lateral appendages, or, in short, of any parts or tissues in or near the pelvis, which, by their incumbency or pressure, might add importantly to the proper weight of the uterus, and, consequently, to the actual bearing to be sustained by its suspensory ligaments. This part of our subject will come in the way of being frequently illustrated in future articles of the work.

OF THE DIAGNOSIS OF DESCENTS OF THE WOMB.—To ensure an accurate development of the facts and principles on which the



several branches of this part of our inquiry are to be founded, it seems necessary that we should more constantly than we have yet had occasion to do, advert to the different forms of the malposition of the uterus as above distributed into three distinct stages: it being the fact that the several degrees of descent of the womb have each and singly their respective liabilities of being confounded with or mistaken for other diseases, or for displacements of natural tissues. We shall first, therefore, consider the diagnosis of descents of the uterus in their first stage. It is obvious that this form of the complaint is liable to be confounded with tumours or displacements of parts situated within the pelvis. The first degree of descent of the womb might by possibility be confounded by an inexperienced individual, and very easily by the patient herself, for an original excess of length of the vaginal portion of the organ itself. That part has sometimes been known to acquire a preternatural elongation of its tissue after the cessation of growth of other parts, without becoming the subject of a positive disease of tissue. In either case the extremity of the uterus by constant collision with the inferior and more contracted portions of the vagina, may become a source of much discomfort to its subject, and lead to the supposition of her case being one of BEARING DOWN of the womb. The objects of the diagnosis would here be to ascertain as precisely as possible the entire length of the vagina, from the rapha of its natural connexion with the neck of the uterus to its orifice; the absolute length of the vaginal part of the uterus; its proportional length to that of the vagina; and any other peculiarity of its form, besides its unusual length; such as a great narrowness either of the whole or of a part of it, and an approach to an actual pointedness of its extremity; or else either with or without a morbid condition of its structure, an excess of its dimensions in all directions; and, finally, the fact of its extremity being perforated by an aperture.

It has not unfrequently happened that AN INCIPIENT STRUCTURAL DISEASE OF THE WOMB has been mistaken for the first stage of its descent from simple relaxation of its ligaments; the patient in both cases usually complaining of pain, which she refers to the small of the back and to the sacral region of the pelvis, as well as to the parts within and in the course of the vagina; whilst she is also equally in both cases the subject of a leucorrhœal discharge. Structural disease of the uterus is not a very common malady of young subjects. Therefore, in cases of this kind, when they do

occur in the more aged, we might perhaps be able, with little difficulty, to avail ourselves of the use of the speculum. But the taxis alone will, in by far the greater number of cases, enable a practitioner experienced in such duties to come to a sufficiently correct conclusion as to the diagnosis. In a case of simple descent of the uterus, he would find the inferior extremity bearing very low down posteriorly on the parietes of the vagina, or perhaps pretty directly on the very verge of its orifice. The most convenient positions for such examinations are those of standing and of half-sitting and half-lying. In the event of the case being one of incipient structural disease, the best position of the patient would be that of lying on her left side. Two principal circumstances might be often assumed in the greater number of such cases as likely to establish the fact, viz. great excess of sensibility of the uterus, or excess of its bulk. Added to excess of bulk, there might also be encountered some striking peculiarity of its morbidly enlarged tissue. The practitioner should take great pains, EVEN DURING THE FIRST EXAMINATION PERMITTED HIM, to satisfy himself of the precise condition of every part of the uterus accessible to his taxis. If he should encounter structural disease, he would be competent at once to come to his conclusion, so far at least as it might concern his diagnosis in connexion with the present inquiry.

There is one very painful condition of the uterus, viz. that which has been called the IRRITABLE UTERUS, see a description of that complaint in p. 284, which can only be distinguished from its simple descent, by an accurate knowledge of the fact and amount of the subsidence of the organ in the one case, and by the intensity and other peculiarities of the accompanying symptoms in the other. It is, indeed, a part of the descriptive history of hystericalgia, that it is accompanied by a slight bearing down of the womb; whilst, moreover, the postures of sitting and standing, and all exercises contributive to locomotion, or requiring any other active movements of the body, seem calculated to exasperate the symptoms of both diseases. Upon the whole, it may be asserted that the best pathognomonic symptom, and the one perhaps most to be relied upon in practice, is the fact, that the incipient state of simple descent of the uterus is not nearly so painful a condition of the organ as that which attends the other malady.

Another disease of the uterus which might require some attention on the part of the medical attendant, to enable him con-

fidently to distinguish it from mere bearing down of the womb, would seem to be one variety at least of POLYPUS. When a polypus, or a polypoid growth, is found to be a distinct production of the interior of the uterus, and it is felt to have its stem everywhere bounded and surrounded by the parietes of the orifice of that organ, there could remain no doubt of the nature of such a case. But the variety of polypus referred to here, is that which has sometimes been known to take its origin from the labial boundary of the orifice of the womb. The diagnosis in such a case could of course be decided only BY VAGINAL EXAMINATION.

Symptoms similar to those usually attendant on descents of the uterus might be produced by OTHER VARIETIES OF TUMOURS OCCUPYING DIFFERENT PARTS OF THE PELVIS. For example, a part of the rectum might be the seat of a painful intumescence of its tissue; or morbid deposits of unorganized formations perfectly foreign to the natural structure of the part might be found encysted within the several tunics of the vagina; or other similar tumours might be discovered to be growing from the periosteum of the inside of the pelvis, etc.; not any of which could be expected to occupy their several localities without producing symptoms which would very difficultly be distinguished, WITHOUT VAGINAL EXAMINATION, from the most common symptoms incident to any considerable precipitation of the uterus. Examination per vaginam would here also be the practitioner's first duty. In all such cases the uterus would probably be found to occupy its proper situation, or at least its proper elevation within the pelvic cavity; and would of course be found remotely situated from the diseased part of the case.

The reader is already in possession of the means of coming to a satisfactory diagnosis between any stage of prolapsion of the womb and HERNIAL PROTRUSIONS, whether intestinal or vesical, into the vagina. (See p. 136 and 147.) In all these cases, whatever might be the seat of the protrusion, the orifice of the womb would be distinctly felt, either at some distance above, or at least as forming no part of, the protruding tumour.

Simple descent of the womb might possibly be confounded by a careless or inexperienced practitioner for some other malposition of the same organ, and such a blundering mistake might compromise the best interests of the patient. The uterine malpositions in question are, retroversion, anteversion, and inversion. But all these malpositions are easily distinguishable from simple prolapsion of the same viscus.



IN COMPLETE INVERSION of the uterus, the more advanced portion of the displaced organ would of course be its fundus, where it would be needless to expect to meet with any form of structure which could give the idea of its orifice; whereas in a case of simple prolapsion, the orifice of that organ is always the most depending part.

In a case of partial inversion of the uterus, it would require great care to distinguish between a tumour of that kind, and a polypus having its base within the uterus, and only incipiently protruding through its orifice. The author, indeed, is doubtful how far it might be proper in such a case to found a final opinion on the result of an examination by the taxis alone. In a partial inversion and a protrusion to some distance, of the tumour thence resulting into the vagina, see Atlas, pl. xix. fig. 2. at b, it would be really exceedingly difficult to determine the precise character of such a case, without the aid of the speculum.

IN CASES OF RETROVERSION of the uterus, its orifice is found tilted up against the symphysis of the pubis, and often so high up as to be difficultly reached by the examining finger; whilst its fundus is thrown over posteriorly, so as to occupy more or less deeply the hollow of the sacrum.

In cases of anteversion of the same organ, its orifice is carried over the hollow of the sacrum, and its fundus borne forward so as to press inconveniently and painfully against the posterior walling of the bladder.

PROLAPSION, OR DESCENT OF THE UTERUS OF THE SECOND DEGREE, is to be distinguished from an incipient inversion and prolapsion of the vagina; from a uterine or vaginal polypus beginning to protrude at the external orifice; from vesical and entero-vaginal hernia; from morbid growths from the interior of the vagina and the surfaces about the vulva; from cases of inverted uterus, whether accompanied or unaccompanied by rupture of the perineum; from unusual conformations of the external genitals; and from original peculiarities of situation of the uterus relatively to the pelvis and to the vagina.

This descent of the uterus of the second degree is to be distinguished from inversion and prolapsion of an inferior part of the vagina by the form of the tumour and by the characteristic difference of the tissues of the prolapsing parts. The presenting part of a prolapsed uterus is usually much narrower, smoother,

and of greater closeness of texture, than the tumour formed by an inversion and prolapsion of the vagina. The orifice at the most depending part of the former is smaller, more distinct, and transverse in its direction; whereas, in the latter case, it is circular, bounded by deep concentric ridges and furrows indicative of the contractility of its surrounding tissue, and terminating in the centre of a soft largish tumour, through which the finger may be easily passed up into contact with the actual orifice of the uterus. The usual appearance of a prolapsion of the vagina with its characteristic aperture in the centre, is very faithfully represented in the Atlas, pl. x. fig. 1.

The tumour formed by A HERNIAL PROTRUSION OF THE BLADDER occupies, principally, one side of the vagina at or near its orifice, and is sometimes seen even to protrude through it; whilst the other side of the vagina is found perfectly healthy and unoccupied; the vaginal part of the uterus in the mean time being felt either at some little distance above the tumour, or merely resting upon it, and in no other way connected with it than by simple apposition.

In like manner ENTERO-VAGINAL HERNIA is to be distinguished from prolapsion of the womb by the easily ascertainable fact of the coexistence of their subject tissues in one and the same person, and also by their respectively different localities.

MORBID GROWTHS from inferior portions of the vagina, and from the surfaces about the vulva, are to be distinguished from prolapsion of the uterus by their characteristic difference of tissue, by the coexistence of both tissues in the same person, as in the former case, and by the absence in the parasite growth of all appearance of aperture at its most depending part.

Cases of totally inverted uteri accompanied by rupture of the perineum, may easily be distinguished from prolapsions without inversion of the same organ, by the absence in the former case and the presence in the latter of an orifice at the most depending part of the prolapsing viscus, as also by other circumstances which it will be more particularly our duty to notice when we come to treat of inversion of the uterus as a separate subject.

A very low congenital position of the uterus relatively to the pelvis and to the vagina should be distinguished from subsequent prolapsion of the former organ by vaginal examination. A correct ascertainment of either of these cases, as also of all structural

enlargements and peculiarities of conformation of the external genitals, will be found easily attainable by means of the taxis, or, at all events, by the eye, without the aid of the speculum.

PROCIDENTIA, OR THE THIRD STAGE OF PROLAPSION OF THE UTERUS, is to be distinguished from prolapsion complicated with inversion of the same organ, by the inferior vaginal portion of the womb being perforated in the usual way by its characteristic orifice in the former case, and by the absence of all appearance of aperture in the prolapsed viscus in the latter: not to add also that in the latter case the tumour is broadest, and in every way largest at its extremity; whereas, in a case of procidentia without inversion, the tumour is usually largest about its middle. Again, in a case of procidentia of an anteverted uterus, two roundish depressions situated laterally and rather low on either side of the tumour, will serve to decide the nature of the case beyond all possibility of doubt, by identifying themselves with the uterine orifices respectively of each Fallopian tube. See these appearances exceedingly well represented in the Atlas, pl. x. B. fig. 2. at b and c.

Procidentia of the uterus, whether at the same time inverted or not, will be tolerably easily distinguished from polypi and other morbid growths, by the former being found to possess their natural feeling upon being touched, and even frequently a morbid excess of sensibility to pressure and pain; whereas, fungoid and parasite growths from the same surfaces are almost always devoid of sensation.

A considerable protrusion of the rectum was once mistaken for a case of procidentia with inversion of the uterus. The tumour first presented itself contemporaneously with the birth of a large child. The portion of protruded intestine was of such a magnitude and so tensely distended, as to have had the effect of concealing all the passages from the pelvis. The author, however, soon learned that the after-birth had not been removed, and he found the placental portion of the umbilical cord prolapsing from between the person of the patient anteriorly and the mass of inverted intestine-looking substance which occupied the space, as already described, between the nates and the superior parts of the thighs. The umbilical cord was firmly taken hold of by the left hand, whilst the right was gradually and very cautiously carried up along it into the vagina, which was found widely developed and empty. At that moment the placenta



could not be reached without causing more pressure upon the tumour than was convenient. There was no discharge of blood, and the uterus could be distinctly recognised through the parietes of the hypogastrium. These facts went incontestably to prove that the placenta was still attached to the uterus, and that the uterus itself occupied its proper situation, under its then circumstances, within the abdominal and pelvic cavities. In its feel and form, and character of tissue, the protruded body furnished unequivocal proofs of its proper nature and source; to the latter of which it was in a few minutes very satisfactorily traced, and in about half-an-hour afterwards it was equally satisfactorily reduced.

OF THE TREATMENT OF DESCENTS OF THE UTERUS.—Of the treatment of this class of malpositions of the womb, it may perhaps be more truly observed, than of almost any other causes of derangements of health, which women are especially liable to, that prevention is better than remedy. The causes of them in nine cases out of ten being a too early getting up and resumption of ordinary occupations after puerperal confinements, it is obvious that in exactly the same proportion the morbid result would be avoided, could puerperal females be induced to avoid these causes. The uterus often contracts in the course of a few hours after delivery to a volume sufficiently small to admit of its easy descent into the pelvic cavity. A condition which is still further promoted at that period by the extreme relaxation and development both of the uterine ligaments and of the parietes of the vagina. Experience therefore has long established the propriety, and indeed the necessity, of causing women, during the season in question, LITERALLY TO LIE IN; that is, to use, more or less exclusively, at that time, the recumbent position, and also to take the benefit of that position within their own chambers. There is no precise measure of time allotted for the observance of this duty; it seems to admit of considerable difference as to its duration in different cases, according to age, previous state of health, present strength, and other circumstances of the patient. The uterus is presumed not to recover its proper size and weight, subsequently to its having been developed by the phenomena of pregnancy, in less than six weeks after delivery. Experience, however, proves that its suspensory ligaments and other tissues by which it is connected with the pelvis are, under ordinary circumstances, sufficiently restored both in

tone and dimensions to be able to sustain the womb and its appendages in their proper situation, relatively to the pelvis, in about half, or even something less than half, that time. It is, however, not here meant that a puerperal woman should always absolutely lie in bed DURING THE WHOLE OF THREE WEEKS. Perhaps in the greater number of cases, the period of strict duration might be safely abridged to the first eight or ten days after the delivery; but that during the remaining portion of the first three weeks the patient should only be restricted to a moderate observance of the same general precept, and in the mean time permitted very cautiously to change her apartment, or to make use of any personal exertion. The foundation for the miseries incident to prolapsions of the uterus, is most frequently laid during THE FIRST PUERPERAL CONFINEMENT. It is then that women are most inexperienced, as well as most confident in their own cleverness and personal strength. Being at the same time totally uninformed of the changes which the uterus and its appendages have to undergo at that period, it should be considered by the attendant practitioner as especially his duty on such occasions to explain to his patient the reason or proper ground of his restrictive precepts to her in respect to her observance of the horizontal position, and to her abstinence from all active personal exertions for a given number of days after delivery. She should be made distinctly to understand, that the obligations imposed upon her are not pressed upon her attention in compliance with any system of mere routine, or from any notion of want of strength on her part to resume her usual occupations, or even from any apprehension of danger to her life in the event of their being neglected; but simply that by such conduct she would secure herself against any risk of descent of the womb and of its often incurable accompaniments and consequences. A perfectly intelligible and unexaggerated explanation of the evil apprehended, and of its principle of prevention, will be found much more convincing in its influence than any propounding of abstract general rules, however earnestly and repeatedly urged upon the patient's consideration.

THE INDICATIONS FOR THE CURATIVE TREATMENT OF DESCENTS OF THE WOMB ARE, 1st, to reduce it to its proper situation in cases requiring the aid of art for that purpose; 2dly, to sustain it in its natural situation by suitable mechanical expedients, as long as the employment of such means might be deemed necessary to prevent relapse; and 3dly, to promote and sustain the general

health, and also the tone of the parts more immediately implicated, by well-adapted constitutional remedies. In some of the milder and incipient forms of descent of the uterus, it may often suffice to adopt such measures as may be exclusively suggested by the latter indication, viz. that of promoting and sustaining the general health and the tone of the parts implicated, by the use of proper constitutional and topical remedies. In a certain proportion of such cases, and more especially when they occur in cachectic or very debilitated subjects from whatever cause, the incompetency of the uterine ligaments to sustain the womb in its proper situation within the pelvis, may essentially depend upon their relaxed and enfeebled condition; that condition being directly or indirectly the effect, or rather indeed a part, of the general relaxation of the whole system. In cases of this description, our principal indication should be to restore the general health and strength by active tonic remedies, preceded or accompanied, when either might be deemed useful, by a judicious course of alteratives. In the event of the vagina being supposed to participate in the general state of morbid relaxation, and together with that of the uterine ligaments to favour the prolapsion complained of, the patient might be very properly supplied with varieties of tonic and astringent fluids, and a suitable instrument for injection, with directions for their frequent application to that passage. In cases of prolapsion of the uterus consequent upon mismanagement or neglect of proper precautions during the puerperal state, it will be found almost always necessary to superadd to any measures of constitutional treatment suggested by the general indication above adverted to, the obligation of an immediate return to the practice of the duty previously neglected, that of using the horizontal position, either altogether, or for many hours daily, according to the more or less urgent claims of the case. At the very commencement of a bearing down of this kind, the personal management in question, immediately put in practice, and rigidly pursued for two or three months, might probably suffice to ensure a restoration of the suspensory ligaments to their former tone and strength. But in prolapsions, from the same cause, when of considerable amount or become chronic from long standing, no substantial relief could be expected without the aid of a pessary, nor frequently a perfect cure, even with that aid, until the incidents of a future puerperal confinement might furnish opportunities for new com-



binations adapted to certain changes of condition of the ligaments and other fastenings of the uterus which might then be expected to take place. With that view ultimately, and for the relief of present symptoms, mechanical expedients of the kind already alluded to should be had recourse to without loss of time. The entire subject of pessaries is treated of at great length in our former work on Obst. Medicine in pp. 550—557 inclusive. See the Atlas, pl. x. c.

We have next to proceed to the consideration of our first great duty in the management of PROCIDENTIA or the third and last degree of descent of the uterus, viz. that of its reduction.

When this form of malposition is only partial, as in the case represented in the Atlas, pl. x. B, fig. 1, or only nearly completed, as in fig. 3 of the same plate, borrowed from the recently published Plates of Mad. Boivin and M. Dugès, the prolapsed organ frequently retires into the pelvis of its own accord, upon the subject of the case assuming the horizontal position. Or when that does not happen, the patient herself is able to effect its reduction very readily with her own fingers, or by a little gentle pressure, first to one part of the tumour then to another, applied by means of a piece of soft sponge. This is the practice most frequently adopted by women in the lower ranks of society, when they have the misfortune of becoming the subjects of this form of malposition of the uterus; contenting themselves for the remainder of whatever further treatment they may consider necessary, with simply wearing a napkin to keep the uterus within the body. In a certain proportion of cases even this precaution is not considered necessary. When the late Dr. John Sims was a student at Edinburgh, there was residing in that city a poor woman, who for many years had been the subject of a procidentia of the uterus, but who had not sustained any serious inconvenience from its malposition. She was a hard-working woman, and was in constant employment as a char-woman. See also the subject of Mr. Jas. Hill's case, who subsequently to her first confinement in the twentieth year of her age, was the subject, for many years, of procidentia uteri. "The uterus fell down as large as a man's fist. After the first prolapsus, the patient went immediately to bed, and put all up very easily. It continued so till the next time she attempted to walk, when it again dropped down as before. She took no medical advice on this occasion; but by the advice of a neighbour bandages were applied, with a

view of keeping it up, but without effect. It always dropped down when she stood erect; and the bandages galled and fretted her so much that she threw them all away. It continued regularly to hang down all the day, and was put up every night; in which situation it remained till she got up next morning. HER HEALTH WAS IN NO DEGREE IMPAIRED BY THIS AFFECTION; and she felt no other inconvenience from it than what merely arose from its bulk." *Medic. and Philosoph. Comment.* vol. iv. p. 88. Mauriceau mentions a case of procidentia of the uterus of three years' duration. "I reduced," observes that writer, "the uterus of a poor woman aged forty-eight, who had suffered from a troublesome descent of that organ, SINCE SHE HAD BEEN FIVE-AND-TWENTY YEARS OF AGE. When I saw her, the womb was larger than the head of a child at birth, it was completely fallen, and had not been reduced for three years." *Sur les Maladies des Femmes*, t. ii. obs. 171. See also two other cases by the same author, proving the same fact. *Tom. ii. obs.* 96, p. 79. But these cases are not to be considered as fair and sufficient examples of the average results of procidentia of the uterus. The reader, on the contrary, will arrive at a more correct estimate of the general importance and occasional danger of this malposition in common with the other forms of descents of the womb, by a perusal, at his leisure, of the following essays and cases:—*Hippocrat. Edit. Foes. Lib. de Nat. Mulier. cap. iv. p. 564 et cap. lxxv. p. 582. De Morb. Mulier. cap. xxxviii. p. 655 et cap. xl. p. 656, et Lib. de Sterilit. cap. xxviii. p. 687. Roussett, de Part. Cæsar. sect. iv. cap. 5 et 6. Casp. Bauhin. in Append. ad Roussett, p. iv. Paræi, lib. xxiii. cap. 40 et 41, p. 798, etc. J. Gwinther de Medic. Vet. et Nov. Comment. i. Dialog. 8, p. 771. Fernel. Physiolog. lib. vii. cap. 2. Patholog. lib. vi. cap. 16. vol. ii. p. 202. Forest. Observ. Medic. lib. xxviii. obs. 35 et 36. Th. Bartholin. Hist. Anat. Rar. cent. iv. Hist. ii. p. 213. Poterii Observ. et Curat. cent. iii. cap. 91. p. 290. D. J. Muralto. Ephemerid. Germanic. dec. ii. an. 1. p. 278. D. Christ. Seliger. Ephem. Germ. dec. ii. an. 1. p. 344. D. Rosini Lentil. Ephem. Germ. dec. ii. an. 2. p. 336 et p. 423. Jacob. Webfer. Ephem. Germ. dec. ii. an. 5. p. 306. Wedel. Ephem. Germ. dec. ii. an. 6. p. 181. Halleri Disputat. Chirurg. Auct. Eilhard Reinick, vol. iii. p. 585. M. Wanters. Journal de Médecine, tom. lv. p. 323. Secretan. tom. lviii. p. 337 et tom. lxi. p. 134.*

OF ANTEVERSION OF THE UNIMPREGNATED UTERUS.—The first

notice of this malposition of the uterus was given to the public by Levret in 1773, in a second communication on descents of the uterus, published in the old French *Journal de Médecine*, tom. xl. p. 269; in which the writer professes to treat of “A PARTICULAR DISPLACEMENT OF THE UTERUS NOT PREVIOUSLY SPOKEN OF BY AUTHORS.” The fact of its possibility was discovered by a post-mortem examination of the body of a woman who had died the victim of an operation for the removal of a supposed encysted stone in the bladder. On examination after death of the parts within the pelvis, it distinctly appeared that there was no disease of the bladder, and that the actual cause of the patient’s malady had been the displacement of the uterus under consideration. The brief history of that remarkable case was, that its subject, who was thirty years of age, had never been properly regular as to her catamenial function; that about ten years before her death she had sustained a violent fall, WHEN SHE CAME DOWN ON HER KNEES, after which she had never been able to empty the bladder nor the rectum without great difficulty; and that although she never had had any children, she had often presented the appearance of an abdominal fullness similar to that of pregnancy. The particulars of name and date are not supplied by M. Levret in his sketch of the above case; but in respect to the latter, it seems certain that it had occurred at least thirty years before his publication of it in the essay of which it forms a part; as will appear from a reference made to it by the writer, in the report of another case of the same uterine malposition of which the date of 1743 is given with sufficient accuracy. See *Obst. Med.* vol. i. pp. 572—577, where M. Levret’s views of anteversion of the uterus are reported at considerable length.

Anteversion of the uterus consists in such a departure of it from its natural position within the pelvis, as to produce a falling forward of its fundus against the symphysis pubis, and of its body upon its contiguous organ the bladder; its orifice in the mean time being determined towards the rectum and the hollow of the sacrum. This displacement of the womb, consequent most frequently upon some ascertainable occasional cause, becomes speedily productive of serious inconveniences to its subject. It is scarcely to be supposed that the anterior chamber of the pelvis could possibly for any length of time be occupied by the fundus and body of the uterus, without exposing the bladder to so much pressure and confinement of space as should impede the due



performance of its proper functions. Hence difficult and painful micturition has always been described as an essential symptom of the disorder. In like manner its vaginal part being determined towards the hollow of the sacrum, it must necessarily follow that, in cases of complete anteversion, the rectum would be exposed to analogous pressure and annoyance from the neck and orifice of the uterus: hence therefore the tenesmus, constipation, and severe hæmorrhoidal symptoms, which practical writers have described as almost constant concomitants of this rare variety of uterine malposition. Another symptom which has been considered an essential characteristic of anteversion of the uterus, is a state of perceptible fulness accompanied by a severe dragging pain at each groin. This effect may be well imputed to the severe tension to which the round ligaments must necessarily be exposed, in consequence of the elongation and pressure inseparable from their changed relations to the uterus.

Most writers have spoken of violent pains of the hypogastrium and of the lumbar and iliac regions; and some even have represented the epigastrium and the whole of the abdomen as seats of painful affections during the presence of the lesion of position of the uterus now under consideration. In some cases there have been also dull aching pains of the interior of the thighs, and of the most distant lateral portions of the investing tissues of the pelvis. The uterus, subject as it obviously must be to so much mechanical inconvenience and constraint, and which it must necessarily be made liable to in consequence of its unfortunate loss of balance, cannot be expected long to remain competent to carry on the business of its proper functions with adequate efficiency and regularity: hence it has been usually observed that anteversion of the womb has often been productive of great disturbances of the function of menstruation.

In almost all the cases of this disorder which we find on record, fluor albus, at some period or other of its history, has also been a troublesome and often a very distressing accompaniment of it; whilst in a certain proportion of cases, that secretion has presented the appearance of a sanguineo-purulent discharge. When the malposition in question has taken place gradually, produced by no ascertainable cause, the constitutional health has also gradually been undermined before the patient has thought it of importance enough to have made it necessary

to take a professional opinion upon her case. Thus no doubt, in many cases, might we often account for the great reduction of strength and emaciation of body, which have characterised the malady in women who have been long subject to it, before its existence has been satisfactorily ascertained; and thus may we likewise as certainly conclude, that many women have perished before the nature of their malady has been discovered at all.

Again, a local affection of so much consequence as anteversion of the uterus, calculated as it really is to produce many sexual and constitutional sympathies, in addition to its distressing local affections, cannot long exist without disturbing the most important of all functions, viz. those of the digestive organs. In the sequel of its history, the heart and arteries escape not the general derangement consequent upon so many evils: hence chronic inflammations of important tissues, daily reduction of strength from profuse morbid discharges, and eventually the ordinary train of febrile actions of a hectic and fatal character.

Anteversion of the uterus has so often succeeded to ill-managed puerperal confinements, as to make it quite certain that premature exposure to the general causes of feeble and unprosperous convalescence have been justly enumerated amongst its most frequent predisponent causes. To this cause some writers have added a more than ordinary amplitude, especially of the lower portion, of the pelvic cavity.

The occasional causes are very numerous; such as sudden and heavy falls; injuries sustained in parturition; violent exertions of whatever kind; travelling in carriages on rough roads; long and fatiguing journeys; reduced power of the round ligaments; according to some writers, morbid conditions of the posterior or sacral ligaments of the uterus; according to Levret, a more than ordinary development and engorgement of the anterior parietes of the uterus itself; morbid adhesions of the same organ to other tissues, as of its fundus and body to the posterior parietes of the bladder, and of its vaginal portion posteriorly to its corresponding superior and posterior walling of the vagina; the pressure of tumours, either of itself or of contiguous parts of whatever pathological character, provided their situation be such as to bear heavily on the uterus in a direction calculated to favour its anteversion; and the actions of certain functional agitations of the system, as those of violent coughs and vomitings.

With respect to the operation of the excessive engorgement

of the anterior walling of the uterus, which Levret supposes to be the principal occasional cause of its malposition under consideration, the author confesses that he entertains some doubt of the correctness of that doctrine. Repeated opportunities for observation, which have occurred since the time of that eminent individual, have gone far to prove that simple engorgement of the part of the uterus in question should rather be placed amongst the effects of its malposition than among its principal occasional causes. It has, for example, been observed, that the hypertrophy of its anterior parietes has been in proportion to the duration of its displacement; a circumstance which would induce us to believe that its increment of bulk was rather the consequence of obstruction to the return of its venous blood, than the effect of any previous enlargement, attributable to no distinctly explained cause. It is moreover notoriously the fact, that anteversion of the uterus has very rarely, if ever, taken place in women who have never had children, or been the subjects of abortion: whereas it has been observed very frequently to present itself among the results of ill-managed puerperal confinements. It deserves to be further remarked, that a similar engorgement of the posterior walling of the uterus has usually characterised its opposite malposition, or in that which its fundus is determined in the opposite direction, constituting retroversion of the same organ.

A case of anteversion of the uterus AT TWO MONTHS' GESTATION communicated by M. Chopart is cursorily noticed by Baudelocque; and a similar case is said by Madame Boivin to have recently occurred in her practice, which it is important for us to know was remedied by nature alone, during the rapidly progressive developments of gestation. It has been supposed by some writers that the anterior obliquity of advanced gestation might predispose the uterus, subsequently to its being emptied of its gravid contents, to anteversion. To the author this hypothesis, for the doctrine has scarcely been attempted to be established by facts, seems improbable; inasmuch as the conformation of pelvis, that of great narrowness of its antero-posterior diameters, which experience proves to predispose to the anterior obliquity of the uterus in advanced gestation, is the very reverse of what should predispose it to anteversion in its unimpregnated state.

The DIAGNOSIS of this disease can be absolutely and satisfactorily made out and established only by examination per vagi-



nam ; the greater part of the earlier symptoms consequent upon anteversion of the uterus being common to it with another malposition of the same organ, viz. retroversion. In both malpositions, the axis of the uterus is totally reversed relatively to its natural situation within the pelvis ; the difference being, that in cases of anteversion the fundus is determined to the front of the pelvis ; and its vaginal portion, including its orifice, determined towards the rectum and hollow of the sacrum ; whilst in cases of retroversion, the orifice of the uterus is found tilted against the symphysis pubis, and its fundus thrown over into the posterior chamber of the pelvis. In both cases it is often found exceedingly difficult to reach the orifice of the displaced organ with the examining finger, whilst in some few instances it has been found almost totally impracticable.

Amongst the cases which the most recent authors have recorded, it is scarcely possible not to observe that they have given accounts of examples of manifest DEGREES of the malposition of the uterus under consideration ; some of the cases having admitted of a most easy reduction ; whilst in others its reduction has not been accomplished without the greatest difficulty. We find several cases recorded in the work recently published by Madame Boivin and her colleague, where the uterus, without any attempt having been previously made to effect its reduction, has regained its natural position by the use simply of a sponge pessary, and even a few where even no pessary had been employed.

SIMPLE CASES of anteversion in subjects having well-formed pelves are indeed frequently thus easily curable by early and judicious management, and sometimes even without the aid of any mechanical contrivances whatever ; whilst on the other hand COMPLEX CASES consequent or dependent upon morbid adhesions, the presence of tumours in the neighbourhood, or of diseased enlargements of the uterus itself, these diseased conditions being themselves incurable, admit of no remedy.

Experience proves that one of the earliest and most inconvenient symptoms consequent upon anteversion of the uterus is a morbid accumulation of blood in its vascular tissues. Consequent upon this result, pressure applied to any part of it, especially to the parts already most inflamed, is usually productive of considerable pain to its subject. In some few cases, however, the patient has borne the professional explorations of her medical attendant without sustaining in this respect any great inconvenience : but

these cases unquestionably form the exception to the general rule. See 4to edition, pp. 581, 582.

In cases of anteversion of the uterus occurring in females having pelves of more than ordinary magnitude, the reader may already have observed, that the displaced organ might become sufficiently and effectually reduced, without requiring any great effort to be made on the part of the practitioner. Through the kindness of his friend, Mr. Snow of Highgate, the author had an opportunity some years ago of practically ascertaining that fact. The subject of the case was a poor woman, the mother of several children, who had to support herself and family by washing and other laborious services. When the author first saw her, she had been for several years the subject of a chronic anteversion of the womb, and at the time in question the whole organ had sunk into the very deepest part of the pelvic cavity. The patient's principal occupation contributed greatly to exasperate her malady. On examination, *per vaginam*, the protuberant body and fundus of the uterus were felt to have descended so low within the pelvis as to be on a level with the superior part of the arch of the pubis; whilst its orifice was found determined towards, and bearing upon, the posterior perinæum and coccyx. The perinæum was firm and unruptured. This examination was made whilst the subject of the case was standing. She was desired to lie on her bed, on her left side, and with her knees retracted. Gentle pressure was then applied upon the anterior projecting tumour, so as to make room for the introduction of a pretty large sponge pessary, which it was intended should principally occupy the lower part of the pelvis anteriorly. This duty was performed with little or no difficulty, the tumour having for the moment receded sufficiently to convince the author that the space required might be conveniently obtained. In a day or two subsequently, a piece of sponge of considerable size was accordingly introduced, and so fitted within its intended locality, as to meet very effectually its proper indication. Instructions were left with the poor woman to remove her pessary every night upon going to bed, and to pass it up again before she got up in the morning. This simple treatment, persisted in for many months, was successful not only in almost immediately relieving the patient of her troublesome and often distressing symptoms, but eventually in removing the cause of them.

With regard to the TREATMENT proper to be adopted in cases

of anteversion of the uterus, the several indications to be attended to may be comprehended under the few following heads: first, that of relieving, when necessary, present urgent symptoms, preparatorily to the reduction of the displaced organ; secondly, that of effecting the reduction in question; thirdly, the introduction and adaptation of a suitable pessary; fourthly, the medical treatment of the inflammatory and constitutional symptoms.

The principal documents existing on this subject are, the excellent and original article upon it by M. Levret, as already referred to: another article of some value, but of much inferior importance, on the same subject, by M. Desormeau, in the *Dictionnaire de Médecine*, tom. xxi. p. 122—130: a few brief remarks on anteversion of the uterus, illustrated only by a single case of it, complicated with a carcinomatous state of the same organ, by Messrs. Murat and Pattissier, art. “*Matrice*,” *Dict. des Sciences Médicales*: a thesis on anteversion of the uterus, by M. Ameline, Paris, 1827, containing a great number of valuable cases, of which many are represented to have been borrowed from Madame Boivin: and lastly, the lately-published *Essay*, on anteversion of the uterus, by Mad. Boivin and M. Dugès, containing an accurate pathological history of the disease, illustrated by interesting examples of its best-known varieties both simple and complicated. *Traité Pratique*, etc. tom. i. chap. 3. p. 115.

OF ANTEFLEXION AND RETROFLEXION OF THE UNIMPREGNATED UTERUS.—Both these affections consist in incurvations of the longitudinal axis of the uterus, in the one case diverging from its natural situation of parallelism, with that of the brim of the pelvis, towards the symphysis pubis, and in the other from the same supposed line towards the hollow of the sacrum. In both, therefore, we have lesions of figure, and, partially but in opposite directions, lesions of position of the uterus. In both the orifice continues to retain its natural situation, relatively to the pelvis and to the vagina, undisturbed; the middle and upper part of the organ exclusively having been found to diverge from their proper axis. Dr. Denman was the first to describe a case of retroflexion; which he did indeed very succinctly; but also with considerable precision. The following historical notice, intended to apply to both varieties of incurvation of the womb, was recently published by Mad. Boivin and



her colleague. We also read, in the *Old Journal de Médecine*, the description of a uterus simulating in its form the curvature of a little horn ; but this, in common with Dr. Denman's case, was nearly forgotten, when an observation forwarded by Mad. Boivin to M. Ameline, and published by that gentleman in his thesis on anteversion, fixed the attention of practitioners of midwifery. Since that time incurvations of the unimpregnated uterus have been often recognised and rationally treated. We here purposely make use of the epithet UNIMPREGNATED, to distinguish deflexions of the uterus in that state from certain inclinations of the same organ during advanced pregnancy which were known before. Baudelocque had correctly observed that in certain obliquities of the uterus, the neck deviated from the natural axis of the entire organ in the same direction as the fundus. The same fact has been observed by Madame Lachapelle, Velpeau, and others. It is probable that both varieties of incurvations of the unimpregnated uterus, forming together the subject of the present notice, may have occurred congenitally as the effect of an originally imperfect development. It is moreover very certain that they may have occurred as a result of disease, either primarily of the uterus itself, or of the organs in immediate contiguity with it. But in the greater number of cases, they should be recognised as consequences of the extraordinary changes, important functional influences, prodigious extension of volume, and unequal developments of given parts of the uterus during pregnancy, and perhaps of unequal contraction and condensation of other given parts of it after delivery and during the puerperal state. Dr. Denman attributed the retroflexion of that organ in the case which he published, and which had been communicated to him by Dr. Thomas Cooper, to overdistension of the bladder as its occasional cause.

The ordinary locality of these incurvations of the uterus is the upper extremity of its neck, or the part where its neck and body are supposed to be continuous into each other. It has accordingly been observed that women who have had children or abortions have been more frequently the subjects of deflexions of the uterus from its natural axis than virgin females of any age. The incurvated part of the uterus consequent upon these deviations from its ordinary form has sometimes been seen to present an angle of considerable acuteness ; whilst in other cases the angle of flexion has been an obtuse one. These facts have been

satisfactorily proved by post-mortem examinations: for they could scarcely be very accurately ascertained by any examination per vaginam during life. It is indeed more than probable, by reason of the unsatisfactoriness of that procedure in the latter case, that these deflexions of the uterus from its natural and healthy axis have often escaped detection, or been mistaken for scirrhusities and other structural diseases of the same organ. In the greater number of cases of this kind, the orifice of the uterus is found situated at or very near its natural situation in the middle of the upper part of the vagina; the fundus in the mean time being deflected as the case might be, either forwards, so as to occupy the anterior, or backwards, so as to be felt bearing on the flooring of the posterior chamber of the pelvis. To ascertain the facts of either of these cases, the practitioner is directed to carry his finger from the extremity of the vaginal part of the uterus upwards, along either side as far as the angle of its deflexion, and from thence forwards or backwards as the case might be, still following its lateral boundary, until it reaches the fundus. This is all very intelligible and very useful no doubt as far as it goes; but does this supposed palpable doubling of the angle of flexion by the finger furnish sufficient evidence to the practitioner of the continuousness and identity of the tissues forming its two sides? If not, it should of course follow that the tumour supposed to be the fundus of the deflected uterus might really prove to be one of morbid growth, either from the body of that viscus itself, or from any other part or organ in its immediate neighbourhood. Hence the diagnosis of these deflexions, when of long standing and become actually chronic in their essential characters, must always, in the author's apprehension, present a subject of considerable doubt and difficulty. This remark however does not apply to recent cases, in which the fact of either of these incurvations of the uterus might seem to admit of being more easily detected and established; and when also, under proper management, the prognosis might be considered as more favourable. On this latter point see the opinion of the late Dr. Denman, Introduction to the Practice of Midwifery, chap. 4, sect. 2: "By this term," viz. RETROFLEXION, observed that eminent individual, "is meant, such an alteration in the position of parts of the uterus that the fundus is turned downwards and backwards between the rectum and vagina, whilst the os uteri remains in its natural situation; an alteration

which can only be produced by the curvature of the uterus in the middle and in one particular state ; that is, before it is properly contracted when a woman is delivered. A suppression of urine existing at the time of delivery, and continuing unrelieved afterwards, was the cause of the retroflexion of the UTERUS IN THE SINGLE CASE OF THIS KIND of which I have been informed by Dr. Thomas Cooper ; and the symptoms were like those which were occasioned by the retroversion. When the urine was drawn off by the catheter, which was introduced without difficulty, the fundus of the uterus was easily replaced by raising it above the projection of the sacrum, in the manner advised in cases of retroversion, and it occasioned no farther trouble."

OF THE TREATMENT OF THE ANTERIOR AND POSTERIOR DEFLEXIONS OF THE UTERUS.—The prognosis in recent cases of this kind is more favourable than in those of long standing ; because, whilst recent, they are incomparably more accessible, if not then indeed exclusively accessible, to efficient treatment. Were the discovery of either of these deflexions to be made immediately after it had taken place, the replacement of the deflected fundus might easily be effected by the introduction of the hand into the interior of the uterus itself ; the breech of the patient being raised above the level of the shoulders, to prevent relapse. Should the practitioner find upon withdrawing his hand, a disposition on the part of that organ to lapse into its previous malposition, it might be advisable to substitute for the hand another instrument of less dimensions ; such for instance as a smooth wooden spatula, broadly rounded at its upper extremity ; a round ruler, also rounded and made smooth at its upper extremity ; in short, any sort of implement of length enough to reach the fundus of the uterus in a state of comparative relaxation soon after delivery. A strong rod of whalebone with a largish piece of sponge firmly fastened to its extremity, on the principle of a probang, could scarcely fail to answer the purpose.

With some such instrument as here supposed, the fundus of the deflected uterus might be replaced with almost as much facility and certainty as by the hand itself. But should this attempt fail, the practitioner would have to introduce his left-hand as before he had done the right ; and after effecting the replacement of the fundus of the uterus, he would have to pass up his artificial instrument along the palm of the left-hand already introduced as far as the fundus, which it should be made



to support firmly in its reduced position, so as to leave the practitioner at liberty to withdraw his hand.

When either of the malpositions of the uterus under consideration shall have become chronic, so as to amount to what might be considered as almost equal to a permanent malformation of the organ, the author knows of no chance of a cure, excepting from such developments and changes of condition in the organ itself as might attend a future pregnancy: and hope founded on those results has not always been without foundation, as we find exemplified in M. Dugès' case, No. 3, vol. i. p. 212.

On a general consideration of this subject, we may observe practically, without going deeply into its learning, 1. That the partial malpositions of the uterus, called anteflexion and retroflexion, are rare affections of that organ. 2. That they have seldom if ever occurred in a virgin subject excepting from congenital malformation, or as a direct mechanical result of structurally diseased conditions of one or more of the pelvic or hypogastric viscera. See Mad. Boivin's case of an unmarried woman, *Trait. Pratiq.* tom. i. p. 214. 3. That, on the other hand, they have generally if not always taken place either during early pregnancy, parturition, or at an early period of the puerperal state; although in many cases they may not have been recognised for many weeks or months subsequently to their first occurrence, nor very rarely indeed until it has been hopelessly too late to afford a chance of their being remedied. 4. In the very small number of cases where the accident was detected at the time, or very soon after its occurrence, it has been found practicable, and even not difficult, to effect the reduction of the deflected uterus. Denman's *Introduction*, chap. iv. sect. 2; Boivin and Dugès, *Trait. Pratiq.* No. 5. obs. 2. p. 215. 5. When such accidents have occurred during an early period of pregnancy, they have usually found a natural and effectual remedy in the further developments incident to more advanced periods of gestation. 6. Cases of chronic deflections are to be considered as totally incurable by any efforts of art exclusively, without the aid of nature as exerted during the changes and developments of pregnancy. 7. That in such cases as in all others where local treatment shall prove unavailable towards the attainment of a perfect cure, it will devolve upon the medical attendant to direct his own attention, in common with that of his patient, to the more general indications calculated to ensure as much per-

sonal comfort and constitutional health and strength as may be compatible with the essential untractableness of the primary malady.

**HERNIA OF THE UNIMPREGNATED UTERUS.**—Of this displacement of the uterus the ordinary designation in nosology is hysterocele. It is a displacement which may occur either during pregnancy, or in a state of vacuity of that organ. The natural locality of the womb being within the cavity of the pelvis, it would appear scarcely possible, when not impregnated, that it could find its way by any of the usual routes of hernial protrusions out of that cavity so as ever to form a part of the visceral displacements of that class. The author indeed believes that there is not on record a single case of hysterocele in a virgin subject, and only very few examples of its occurring subsequently to antecedent pregnancies, in persons not actually pregnant, puerperal, or convalescent after child-birth. These few exceptions, however, to the general rule are sufficient to bring the subject within the comprehension of the present article. One of the first recorded cases of hernia matricis in an unimpregnated subject is that which we find reported by Professor Lallement, in the *Memoirs of the Medical Society of Emulation*, tom. iii. p. 323. See also the *Recueil Périodique de la Société de la Santé*, vol. v. p. 14. The subject of this case was an old washerwoman who had had many children; but without having experienced anything unusual in her labours. At about the age of fifty, when her menses ceased, a swelling presented itself at the right groin in consequence of a strong bodily effort. This tumour was of a pyriform shape, and of length equal to five fingers' breadth. From its being painful at first, it soon afterwards became insensible. The subject of the case, some time subsequently, availed herself of an asylum afforded her at l'Hospice de la Salpêtrière; where she died at the age of seventy-one. On dissecting her, Professor Lallement found, in a very thick herniary sac, the whole of the uterus, together with the Fallopian tube and ovary of the right side. The other ovary and its tube were seen to border the outside of the ring. The vagina was drawn violently upwards, and put upon the stretch by the uterus, so as to cause pressure of the bladder against the pubis. The upper part of the vaginal tube had indeed been carried through the ring, together with the vaginal part of the uterus, which it embraced; M. Lallement directed particular attention to this circumstance, as a feature in the case which

should be considered as one of the most certain indications of an inguinal hernia of the uterus.

It seems possible that a hernia of the uterus might exist as a congenital malformation. The author is however not aware of the existence of such a case, excepting that of the remarkable Humbert Jean Pierre, as reported by M. Maret in the second volume of the *Memoirs of the Academy of Dijon*, and quoted at length at p. 66 of the 4th edition of this work.

THE TREATMENT OF HERNIA OF THE UNIMPREGNATED UTERUS must be conducted on the same principles and by similar mechanical means as other hernial protrusions. Elastic bandages and trusses, first to prevent protrusion when only threatened, and again to prevent relapse after it shall have once protruded and been properly reduced, are accordingly the objects and the means indicated for its treatment. In the event of strangulation taking place, there should not be a moment's hesitation as to the duty of performing the operation required in that case without delay.

OF ANOMALOUS STATES AND AFFECTIONS OF THE VAGINAL PART OF THE UNIMPREGNATED UTERUS.—This important portion of the uterus may be said to be subject to considerable varieties of original conformation. In the foetal state, and for a short time after birth, its orifice would seem to present the appearance of not having been evolved into its eventually intended form; its lips being of a loose texture, and having more the character of an appended drapery to the body of the uterus, than a firm and continuous portion of that organ itself, finished off into the precise shape and polish of surface, which afterwards are found to distinguish them. The form of the aperture, of which the labia are the boundaries, is not the same in all subjects at any age; it being in some cases perfectly circular, and in others, and most frequently, a transverse opening bounded by two lateral commissures. Again, the length of the entire projection, correctly denominated the vaginal part of the uterus, has been found very greatly to vary in different women, although perfectly similarly situated as to age and functional influences. It may be further observed that it has very rarely happened that the violence exerted on the part in question by the agency of parturition has not left it materially changed from its original form and perfect continuity of surface; it being well known that on occasions of great severity of the function alluded to, it has often been left deeply fissured and carunculated. There are indeed facts to



prove, that portions of the same tissue have SLOUGHED OFF in masses of various magnitude, both in consequence of specific diseases and of injuries sustained from severe and protracted labours ; so as to leave no vestige even of a projecting remnant of a part, which before had been so prominent and characteristic. This portion of the uterus has moreover been the subject of so much active inflammation of its surfaces, as to become adherent by means of these surfaces to the corresponding surfaces of the parietes of the vagina, and consequently to become totally obliterated as a projecting body into the vaginal passage.

## CHAPTER VII.

## OF PEDICULATED AND OTHER EXCRESCENT TUMOURS FROM THE UTERUS.

OF PEDICULATED TUMOURS USUALLY CALLED POLYPI OF THE UTERUS.  
 —Sarcoma matricis; fungus uterinus; mal Saint Fiacre; poulpe; cercosis; queue de la vulve. The term polypus means, ETYMOLOGICALLY, any body or trunk having many feet, and was no doubt first applied to the sea animal with many feet, the polypus marinus. In process of time, and possibly in consequence of some fancied resemblance of structure between the constituent tissues of marine polypi and those of certain pediculated tumours which were observed to grow from some of the cavities and outlets of the human body, the well-known and accepted designation of the former was thus easily assumed as an appropriate appellation of the latter. The specific character of the pediculated tumours of human nosology is not that of their being supported by or attached to the surfaces from which they take their origin, by eight or any other number of feet or fangs; but simply THAT THEY TAKE THEIR ORIGIN FROM CAVITIES AND OUTLETS OF THE BODY LINED WITH MUCOUS MEMBRANES, AND THAT THEY ARE ATTACHED BY A STEM; it having been observed, as some authors have maintained, that true polypi never take their origin from any other than mucous or cellulo-mucous tissues. This pathognomonical distinction of true polypi must of course exclude all other morbid formations, of whatever family or kind, or wherever else situated, as for example in the heart, brain, etc., from an identity of nosological character with the pediculated tumours which are to form the subject of the present article.

Without regard to any precise definition of polypi, modern writers have distributed tumours of this class into several principal varieties, founded for the most part upon their more obvious physical and structural properties; as soft, hard, vesicular, fibrous, fleshy, etc.

OF SOFT POLYPI.—Of this family of parasites the most considerable are probably those which have been generally called vesicular polypi. From the rapidity of their growth, they are usually of very considerable size. They are almost always con-

neeted with their parent tissue, by one stem ; which however, in some cases, afterwards divides itself into numerous shoots, which are to be seen distributed through the entire substance of the tumour. This polypus has no particular form ; but in this respect it may be observed generally to accommodate itself to that of the cavity where it is produced ; and it is said frequently to present externally the appearance of having a rugose or crimped surface. It is not however multilobulated. If removed from want of good management imperfectly, a new polypus is developed in a short time after the extirpation of its predecessor. On cutting through a vesicular polypus, we meet with a resistance proportional in degree to the greater or less density and state of tension and elasticity of the parietes of its vesicles. Occasionally blood-vessels may be seen ramifying on the surfaces of tumours of this class ; but in the interior of their tissue, we seldom meet with any red vessels. The colour of the vesicular polypus is not always the same ; it being generally of a yellowish hue, but sometimes grey. These excrescences are of an indolent character, and totally insensible to painful impressions ; it being a part of their history that no nervous fibrils have ever been seen to enter into them. M. Nauche, *Des Maladies propres aux Femmes*, p. 225, if we may judge by his description of its locality as connected with the uterus, would seem to assume as a fact, that the vesicular polypus is really sometimes a produce of that organ ; whereas it has never occurred to the author to have met with a single example of a stemmed tumour of that variety, which had owed its source to any part of the mucous tissue of the womb.

FIBROUS POLYPI are usually of less volume than those of the class of vesicular tumours. Their colour is generally livid, and in some cases slightly reddish. Their tissue, for the most part firm and resistant, is but little susceptible of contusion from the application of pressure to them. By sudden and violent movements, however, and by incautious handling of their stems for the purposes of examination, they are very apt to yield profuse discharges of blood ; which also are indeed sometimes encountered during the utmost stillness and quietude of the patient. Tumours of this class constitute a large proportion of uterine polypi.

As holding a middle place between vesicular and fibrous polypi, we should next notice the variety of these parasite formations, which perhaps we most frequently encounter as diseased produc-



tions of the uterus; viz. such as by some authors are called MUCO-LYMPHATIC, and by others CELLULO-FIBROUS POLYPI. These tumours are said to take their origin partly from the cellular structure immediately beneath the mucous lining of the uterus, and partly from that mucous tissue itself. Their usual size is much less than that of the fibrous polypus. Their surface is smooth and moist; and they annoy more by the irritation of their presence and fretting of the external genitals, where they are always felt to be in contact, than by any deep-seated pain of the parts within the pelvis produced by their pressure. They are generally accompanied by a very constant and often a profuse leucorrhœal discharge, but seldom by dangerous hæmorrhages. This is the variety of polypus which most frequently takes its origin from the actual orifice of the uterus; where its tissue being visibly different in its hue and fabric from those of its parent source, it may with the aid of the speculum be seen to insinuate itself by a very narrow stem into, and apparently through, and to some depth beyond, the mucous membrane of the part.

SPONGY and GRANULAR are epithets which, as applied to polypi, have been somewhat differently employed by different writers. The term spongy, for example, has been used by some in the sense of vesicular, by others in that of cellular, and by a third party to characterise tumours of an actually GRANULAR structure, whilst the very existence of a primarily granular polypus has been positively disputed by several estimable writers; the characteristic texture of polypi of that name being the result, as assumed, of a gradual conversion of them into that form, from an apparently very different original fabric, viz., from that proper to fibrous tumours. The author, however, is quite assured that he has seen at least one specimen of a primarily granular character.

Again, the generic term HARD, may be supposed to include more than one original variety of polypous tumours possessing the attribute of great firmness and condensation of their constituent tissue: although it is employed by some writers as descriptive only of fibrous tumours, and their supposed conversions into other and more malignant forms. This view however the author regards as erroneous.

In some tracts upon this subject, we meet with the distinction of scirrhus and carcinomatous polypi; in consequence possibly

of these descriptive epithets having been mistakenly applied to polypous tumours of a certain amount of density, whether in a sound or in an ulcerated state ; these parasites of course being subject, in common with more regularly organized structures, to destructive ulceration of their tissue.

Uterine polypi, of whatever variety of tissue, although seldom unattended by some obscure indications of a diseased condition of that organ, are nevertheless not usually accompanied by symptoms of great severity during the earlier stage of their development. The phenomena ordinarily encountered during that period, are, a sense of weight about the small of the back, and within the cavity of the pelvis ; pains about the hips and loins ; inconsiderable hæmorrhages : occasional voiding of coagula of various sizes, preceded and sometimes succeeded by that of corresponding quantities of serous and leucorrhæal fluids. As the polypus advances in its growth, it may have the effect of producing symptoms which may be mistakenly presumed to indicate the presence of pregnancy, or, in very young women, an approach to the first period of menstruation, and in subjects more advanced in life, to that of the cessation of the menses. During this stage of the disease permission to examine *per vaginam* might often be declined, and if acceded to, it might not necessarily lead to any satisfactory discovery, inasmuch as nothing might be absolutely made out by it, beyond the simple fact, and possibly not even that, of some inconsiderable increase in the size of the uterus.

Such are the more local symptoms incident to the first development of polypous tumours within the body of the uterus. The constitutional symptoms are scarcely more pathognomonic and decided. When a woman begins to be the subject of preternatural formations within the uterine cavity, she usually becomes the subject of general indisposition, depression of spirits, loss of appetite, dislike for particular foods, indigestion, a sense of fullness and distension of the stomach, even after light meals, the noisy state of bowels called *borborigmi*, disturbed sleep, palpitation of the heart, and a number of other teasing and troublesome symptoms, which could not be assumed to be indications necessarily and unequivocally of uterine irritation ; or which, if so considered, could furnish no clue to the discovery of any specific cause of that irritation. Subsequently to any considerable development of the neck of the womb, the inferior part of the body



of the tumour will become accessible even to an imperfect cognizance of its presence by the taxis.

Tumours which take their origin from the interior of the neck of the uterus, find their way through its orifice at a comparatively early period. When the body of a polypus shall have effected its transit into the vagina, it will there present itself in a form and under circumstances which will generally enable a skilful practitioner to predicate more or less confidently as to its nature. When the mass of the tumour is making its passage through the neck of the womb into the vagina, the patient has often to sustain very severe uterine pains. On one occasion of this kind the author's attendance was requested in a case of supposed miscarriage. The patient had sustained a very profuse discharge of blood some two or three days previously. On making an examination per vaginam, he found presenting at the orifice of the uterus a roundish body, which he naturally enough was led to presume must be the produce of the conception which had for some time been reported to him as having taken place. The orifice of the uterus was dilated to about the extent of an inch and a quarter, and the presenting substance was felt from time to time to be propelled by active contractions of the uterus. Its progress however was so slow and gradual, that it did not clear the os tincæ until after the lapse of four days from the commencement of the process, or rather from the commencement of the author's attendance. At this stage of the proceedings, it was very easily ascertained that the presenting mass could not be an ovum, nor even the placental portion of one: a small but firm stem, which could be felt adherent to the tumour, and connecting its body with the interior of the uterus, furnishing of course sufficient evidence of the true nature of the case. In the course of a few hours, a ligature was thrown over the stem of the polypus, and tightened daily until the whole came away, which however did not take place until after the expiration of an entire week. It was then shrunk into less than half its former size, and was obviously a specimen of a cellulo-membranous polypus.

During the more considerable development of the neck of the uterus which we presume to precede and accompany the passage of the body of a tumour of this description from the uterine cavity into the vagina, the patient is usually subject to profuse and repeated hæmorrhages; she is observed consequently to become exceedingly pale and delicate, easily overcome with the



least exertion, liable to be frequently seized with faintings and palpitations of the heart, and to become the subject of all sorts of dyspeptic symptoms. This description may not absolutely apply to all cases; and the author has indeed several examples of polypi originally uterine, which had not been complicated with hæmorrhages either before or for several years subsequently to their transit to the vaginal passage, where indeed even then they seemed to produce so little inconvenience as scarcely to affect the patient's general health.

It is a general opinion that the pediculated form is given to tumours of this kind by the pressure which they have to sustain from the neck of the uterus during their passage from the uterine cavity into the vagina; and this may often be, and is no doubt, the case; however much more frequently, the author is disposed to believe, that THESE PARASITES ARE ORIGINALLY, OR BECOME AT A VERY EARLY PERIOD OF THEIR DEVELOPMENT, PEDICULATED. Fibrous polypi are almost always examples of pediculated tumours at a very early period of their growth in utero; see pl. xvi. fig. 1 at b. of the Atlas; where this point is beautifully illustrated. The preparation, which the print very faithfully represents, forms a specimen of considerable interest in the obstetric section of the anatomical museum of University College; where of course it may be seen by any visiter properly introduced as a member of the profession. Subsequently to the passage of the tumour from the uterine cavity into the vagina, the patient's general sufferings are often considerably exasperated. She then becomes subject to more direct pressure both upon the neck of the bladder and the urethra, and upon the rectum. The pedicle is made much more liable than previously to be put violently upon the stretch, which must expose the patient to much additional risk of hæmorrhage. The symptoms thus secondarily produced will of course vary in their amount and intensity according to the specific character and rapidity of development of their occasional cause. If the polypus be of a nature to acquire an unlimited increase of volume, a time will eventually arrive when it will actually force its way out of the cavity of the pelvis altogether. Here of course it will be found quite accessible to any surgical treatment that may be deemed most advisable or best suited to the particular case: but even here, it has been allowed to remain in some cases for years without any sort of attempt being made to remove it: whilst in some others it has been with-

drawn from the vagina by obstetric instruments, under the erroneous impression that the presenting tumour was no other than the head of a child propelled into that passage by the ordinary action of the uterus.

It is in the nature of some polypous tumours, as already observed, to increase in their volume indefinitely until they shall have so completely blocked up the pelvis, as to be forced out of it by dint of their gradually increasing development. When the polypus, under these circumstances, happens to be of a round and well-defined form, and of a moderately firm tissue, it will often effect its escape quickly, by an expellent action of the diaphragm and abdominal muscles instituted for that purpose. But when of softer tissue, it may present itself at the os externum and gradually produce a sufficient development of that part to admit of the engagement of successive portions of it within the external orifice, and of the subsequent protrusion of the same portions of it beyond it. Tumours of this kind, partly perhaps from their original conformation and character of tissue, and partly from the fact just stated of the comparative facility with which they effect their protrusion through the external orifice, seldom assume the ordinarily characteristic pyriform figure of the more common varieties of polypi.

From the great care which nature is observed ordinarily to take in providing for the security of the produce of conception by sealing up the uterus against the invasion of causes of interference with the due development and maturation of the ovum, it should appear *a priori* improbable that such development and maturation, not to say even conception itself, should ever be found compatible and coexisting with the preoccupation of the neck and orifice of that organ by the stem of a polypus. The fact of this complication is, however, indubitably established by many very well-authenticated cases. Consult the following works, *Mémoires de l'Académie Royale de Chirurgie. Mém. sur les Polypes de la Matrice et Vagin*, par M. Levret, tom. iii. art. 3. p. 543. M. Levret, in the same article, quotes two other equally important and interesting cases in illustration of the same fact. See also, in further confirmation of the subject, *Smellie's Cases. Collect. ix. case 2. p. 104. Edition of 1754.* We again meet with an analogous case of a tumour within the vagina of a woman who had advanced into the ninth month of her pregnancy, in vol. xxx. p. 518 of the *Old Journal de Médecine*,

communicated by M. De la Mare. The polypus was treated by ligature. The patient was happily delivered in twenty days after the cessation of all purulent discharge subsequently to the falling off of the ligature. See moreover several cases of a similar description recently published by Madam. Boivin and her colleague in an article entitled, "*Plusieurs Cas des Polypes qui n'ont pas empêché la Fécondation : Traité Pratique, etc.* vol. i. p. 380. But of all the cases which we find recorded on this interesting subject, the author has most satisfaction in referring to that of his late venerated friend Dr. Denman, as published in the twenty-seventh volume, p. 467, of the Medical and Physical Journal, which however being almost universally accessible he need not at present quote. See *Obst. Med.* vol. i. p. 615.

Polypi of the uterus have occasionally been found, although not frequently, complicated with prolapsions and other malpositions of that organ. It may indeed be observed, that in the greater number of cases of uterine polypi, in fact in all of any considerable volume, some amount of descent of the womb towards the outlet of the pelvis must be a natural consequence of its having to sustain the weight of a polypus when protruding and suspended from it. But cases have occurred in which the descent has been so great as to form complete procidentia. An instance of a case of this kind is quoted in Levret's *Essay on Uterine and Vaginal Polypi*, *Mém. de l'Acad. Roy.* tom. iii. p. 534, which occurred in the practice of M. Baget. That gentleman was consulted in the case of a married woman, of between two and three and-thirty years of age, who for many years had been in an infirm state of health, and who in the previous year sustained a miscarriage, and in 1821 a premature labour, which was followed soon after by the formation of a pediculated tumour of considerable size. The case is given at length, and is worth perusal. See also an interesting narrative on the same subject in the thirty-seventh volume, p. 440, of the *Old Journal de Médecine*.

But not only are there recorded many cases of uterine polypi complicated with various degrees of descent of the uterus, but there are not wanting some extraordinary examples of excrescent tumours of that organ, which, in consequence of the forcible distension of its parietes produced by their great bulk and subsequently by their pendulousness from its cavity, have become eventually complicated with an absolute inversion of its entire



body. Of this remarkable variety of inversion of the womb, our Plate *xxi.* exhibits an interesting and most extraordinary example. The preparation itself may be seen on one of the obstetric shelves of the anatomical museum of University College. The plate is indeed a faithful map of the piece of pathology which it is intended to represent.

OF THE SEVERAL CAUSES OF UTERINE AND VAGINAL POLYPI.—Among the predisponent causes, the concurrent testimony of practical writers would seem to indicate the following as the most important: states of uterus consequent upon miscarriages and premature labours; states of uterus sometimes to be identified with the causes and sometimes with certain results of disordered menstruation; analogous conditions of the uterus, competent under different circumstances to produce, or to be results of, uterine hæmorrhages; states of uterus favourable to the secretion of leucorrhæal or other kinds of morbid discharges; constitutional leucophlegmasia; delicate constitutional health from whatever pre-existent causes; age between forty and fifty; over plenitude of the vascular system; a strumous habit; and possibly some other inherited faults of structure, fluids, or of functional actions.

The OCCASIONAL CAUSES are, all circumstances whatsoever which may be supposed competent to excite the uterus to morbid actions having a specific tendency to produce polypous tumours. Hence the presence of any morbid or extraneous substance within the cavity of the womb; the contact of any irritating fluid, as that of leucorrhæa, or even of simple serum rendered acrid by stagnation; the presence of putrid remnants within the uterine cavity of coagulated blood or fibrine, and consequently all shocks or other states of the vascular system, which may have the effect of determining increased quantities of blood into the genital system; morbid states both of the structure and functions of the uterus itself, consequent on undue indulgence or other abuses of the sexual passion; excessive languor of that passion, or a state of privation of the means of its gratification; such states of the uterus as are apt to be present in females affected by chlorosis; exposure of the genital surfaces to virulent or infectious agents; solution of continuity, however produced, of any of its surfaces, and especially of some of its peculiar tissues, as for instance of the extreme ramuli of its arteries, which may be well presumed to be principal agents in the generation and subsequent evolution

of the greater number of its diseases; morbid agency of the nervous fibrils of the part of a uterus about to become the seat of a polypous excrescence, or of certain nervous centres competent to produce an unsalutary influence upon the uterus, from a remote distance; and, lastly, morbid states and actions of those mucous membranes of the genitals which usually give origin to the growth of polypi.

OF THE PROXIMATE CAUSE OR CAUSES OF UTERINE AND VAGINAL POLYPI.—On this part of our subject we have several ingenious conjectures. According to the notions of some writers, a polypus is only an enlarged lymphatic gland. “It is formed,” observes the reporter of a valuable case upon the subject, “by a small tubercle which is generated in the lymphatic glands, by an action which very often ends in the destruction of its primitive tissue, by the sole progress of its development, and without there having been any real infiltration of tuberculous matter into the gland itself. It causes the spaces of the cellular tissue to become enlarged, the mucous membrane to be elongated, and the polypus to be formed. Yielding to its own weight and to the action of the parts which surround it, and which press upon it on all sides, it soon descends into the vagina, where it presents itself in the shape of a pyriform tumour, of which the large extremity is the depending part. F. Degnise, M.D., in a communication to the Editor of the *Nouveau Journal de Médecine*, etc. tom. i., p. 139.

Smellie, in the description which he has published of one of his cases, ascribes the same result to the morbid development of a sebaceous gland. “The patient was a woman turned of thirty, who had never born children. One of the sebaceous glands on the right side of the os externum and close to the carunculæ myrtiformes had become as large as a middling pear, and was found hanging from the part by a long neck as thick as the little finger, and about half a yard long, so that the tumour reached to her knees. I perceived the lower end, which was the largest, excoriated, and appearing like a herpes; although she felt no pain. From this part a small quantity of blood was discharged, DURING EVERY MENSTRUAL EVACUATION. A ligature being applied to the neck of the tumour, close to its origin, it was amputated, and the wound was cured without any difficulty.” Smellie’s *Midwifery*, Coll. ix. No. 1. Case 1.

Mr. Abernethy, after defining tumours to be “such swellings as arise from some new production, which had made no part of

the original composition of the body," has favoured the public with an interesting explanation of his theory of their formation, which perhaps it would be best to lay before the reader in the writer's own words. "The incipient state of tumours will naturally first engage our attention; and those which perhaps form the best example and illustration of the subject, are those which hang pendulous into cavities from the membranous surfaces which form their boundaries. The cause of tumours having a pendulous attachment attracted the attention of Mr. Hunter, who made the following remarks on the formation of one of the inner surface of the peritoneum, as is related by Mr. Home, in the *Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge*, vol. i. p. 231. 'The cavity of the abdomen being opened, there appeared lying upon the peritoneum a small portion of red blood recently coagulated. This, upon examination, was found connected with the surface upon which it had been deposited, by an attachment half an inch long, and this neck had been formed before the coagulum had lost its red colour.' Now," proceeds Mr. Abernethy, "had vessels shot through this slender neck and organized the clot of blood, as this would then have become a living part, it might have grown to an indefinite magnitude, and its nature and progress would probably have depended on the organization which it had assumed. I have in my possession a tumour which doubtless was formed in the manner Mr. Hunter has described, which hung pendulous from the front of the peritoneum, and in which the organization and consequent actions have been so far completed, that the body of the tumour has become a lump of fat, whilst the neck is merely of a fibrous and vascular texture. There can be but little doubt that tumours form everywhere in the same manner. The coagulable part of the blood being accidentally effused or deposited, in consequence of disease, becomes afterwards an organized and living part, by the growth of the adjacent vessels and nerves into it. When the deposited substance has its attachment by a single thread, all its vascular supply must proceed from that part; but in other cases, the vessels shoot into it irregularly at various parts of its surface. Thus an unorganized concretion becomes a living tumour, which has at first no perceptible peculiarity as to its nature; and though it derives a supply of nourishment from the surrounding parts, it seems to live and grow by its own independent powers; and the future structure which



it may acquire seems to depend on the operation of its own vessels."

OF THE DIAGNOSIS OF UTERINE AND VAGINAL POLYPI.—There are few diseased conditions of the internal genitals which CAN BE EASILY MISTAKEN for any variety of the adventitious pediculated tumours which form the subject of the present article. Nevertheless there are not wanting in the records of our profession some extraordinary examples of mistakes of this kind. Hernial protrusions into the vagina of the intestines, of the bladder, or part of that organ, or of the omentum; perineal hernia of the intestines; cases of prolapsion and inversion of the vagina; and all degrees of descents, as well as morbid extensions of the proper tissue of the womb itself, have accordingly furnished opportunities and subjects for the commission of such mistakes.

Hernial protrusions of intestines into the vagina are for the most part exceedingly easily distinguished from polypi of that passage by their elastic and otherwise characteristic feel; by their perfect sensibility to the touch, and especially to the minutest puncture or incision made by a pointed or edged instrument; by their being covered by a production of the mucous membrane of the vagina itself, which generally may be easily enough identified by its characteristic rugæ; by the peculiar crepitus of hernial tumours; by the occasional reducibleness of their bulk by compression; and by the almost entire absence of the properties which more especially distinguish polypi.

Hernial protrusion of a part of the bladder into the vagina may be distinguished from a vaginal polypus by the peculiarity of its feel, which is nearly equally soft and compressible, but not so elastic, as a tumour formed by a protrusion of intestines; by a difficulty and perhaps pain in voiding the contents of the bladder; by a tortuous direction of the urethra, ascertainable by the introduction of a flexible catheter; by different sizes of the tumour during states of comparative fullness or vacuity of the bladder; and by its being visibly covered, as in the former case, by a production of the mucous membrane of the vagina.

A tumour formed by a hernial protrusion of intestine at the vaginal boundary of the perineum may be distinguished from a polypous excrescence of that part, by the usual feel of hernial tumours; by its being covered by a production of the proper integument of the part and its neighbourhood from which it takes

its origin; by the crepitus incident to hernial enlargements, and by the painful and characteristic symptoms of strangulation, in the event of the supervention of that result. This last distinction is of course applicable to all tumours formed by hernial protrusions of the intestines, whether formed actually within the vaginal passage or at its inferior boundary.

The most frequently occurring examples of the mistakes which are committed in respect to uterine and vaginal tumours, are those made between different degrees of descents of these organs themselves, and the polypous tumours which form the subject of the present inquiry. Of about twenty-six cases of adventitious pediculated uterine and vaginal tumours which are recorded in Levret's Memoir already alluded to, we meet with at least six which had been mistaken for prolapsions or other forms of displacement of the uterus. See also in Levret's treatise on Polypi, p. 28, a long list of published examples of the same mistake. The diagnosis of each of these malpositions of the womb the reader will find sufficiently clearly indicated, each under its proper head, in preceding pages of the present work. Amongst the several malpositions of the uterus, uncomplicated with other diseases, it is only inversion, as it seems to the author, that can be easily mistaken for a pediculated tumour taking its origin from the interior of the organ; and in one particular variety of uterine polypus, viz. one taking its origin from the labial inferior boundary of its vaginal portion, there may be some difficulty in clearly making out the distinction. The following, however, are the proper elements of a correct diagnosis on the subject.

A simple inversion of the uterus may indeed present to the taxis several circumstances calculated to mislead a practitioner of limited experience to the notion of its being a polypus occupying the same situation within the vagina. Both are felt to be pyriform bodies. They may be of equal magnitude, and not very unlike each other as to the tangible properties of their tissues. Both are usually accompanied by occasional hæmorrhages, and are almost equally causes of profuse leucorrhæal discharges, calculated to reduce the health and strength, and to involve even the life, of the patient in jeopardy.

The following are the pathognomic circumstances of each. The inverted uterus forms a tumour possessed of more than ordinary sensibility. It recognises the lightest touch of a finger,

and is painfully affected by the puncture of a needle, or even the pressure of the more pointed end of a probe. The attempt to examine its neck or stem is often attended with much difficulty, by reason of the extreme tenderness of the parts forming the os externum; and when the finger reaches high enough to effect that object, it arrives at no stem analogous in its properties of tissue, dimensions, relative position, and connexion, to those of the ordinary stem of a polypus. The superior part of the neck of an inverted uterus might indeed be felt somewhat distinctly bounded by a thickish ring of rather firmer tissue than itself. A skilful and experienced examiner might possibly be able to recognise the part in question as a portion of what is usually called the vaginal part of the uterus partially inverted; but by no means as that part in its ordinary state, nor even in its proper relationship to the stem of a polypus. Again, simple inversion of the uterus has always, as far as the author has known, been an early sequence of parturition, and a result of undue violence, either on the part of nature in the expulsion, or of the practitioner in the removal of the placenta. In either case so serious an accident must be immediately followed by effects so immediate and alarming as could scarcely fail to be recollected by the patient herself, and thus become available to the object of a true diagnosis. A uterine polypus, on the other hand, is for the most part a totally insensible tumour. It is pendulous from some part of the uterus into the vagina by a neck which is usually very much smaller than its body; and its stem, whether thus comparatively smaller or not, is found surrounded by the actual and easily recognisable parietes of the neck of the womb in its natural situation relatively to the vagina.

There however exists one variety of uterine polypus, of which the establishment of a correct diagnosis might be attended with much difficulty, even to a skilful and practised operator. It is that which takes its origin from the whole or greater part of the actual boundary of the passage within the cervix of the womb. This variety of pediculated tumour of the uterus is that which Levret has made to constitute his third species of uterine polypi. Levret, *Observations sur les Polypi*, art. 1. p. 14. The implantation of a large stem of a tumour of this variety must obviously involve its diagnosis in some difficulty. A case of this sort, so absolute and complete as to amount to an effective impediment to all communication between the uterus and the vagina,



could only exist in a non-menstruating subject. If therefore the catamenial function is found not suppressed, nor otherwise disturbed, it would be a matter of presumption either that the orifice of the uterus was not perfectly obstructed, or that the source of the discharge must be the surface of the actual tumour. In this predicament, it would seem especially important, that the suspected obstruction of the ordinary passage through the cervix and orifice of the uterus should be further examined into and determined one way or the other beyond all possibility of doubt. To accomplish that object, it might be necessary to bring the tumour, and even the supposed seat of its implantation, within the reach if possible of an ocular examination.

In a case of inversion of the uterus, complicated with, and possibly produced by, a polypous excrescence from the interior of its fundus, the diagnosis must be considered as extremely difficult, and sometimes actually impossible. It might, perhaps, be practicable to arrive at a correct diagnosis, with respect to some forms of the complication now in question, by making proper investigations at early periods of their development, when the stem of the polypus might be limited to a narrower extent of implantation.

OF THE TREATMENT OF UTERINE AND VAGINAL POLYPI.—The important and indeed the only indication to be pursued in the treatment of these adventitious bodies is, by the speediest and best means to effect their removal. For the accomplishment of that object, the several different modes of cauterization, abscision, extirpation by ligature, and torsion, including forcible traction and wrenching, are the chief measures to be relied on.

The use of caustics for the extirpation of uterine and vaginal excrescences, has been known and recommended from a very early period of the history of medicine; Celsi Oper. lib. vi. cap. 18; and there are not wanting some examples of its having been made available in the practice of comparatively modern times. Juncker. Conspect. Chirurg. tab. 101. Verduc. Pathol. Chirurg. cap. xlii. Volter. Schola Obstetricum. For the destruction of fungoid growths about the vulva and the orifice of the urethra, as also for that of small carunculous sproutings from the orifice and surfaces immediately contiguous to the orifice of the uterus itself, and in that case to be cautiously applied to the part affected by means of a suitable speculum, some varieties of caustics

may be made exceedingly available ; IN CASES ESPECIALLY where the more formidable operation of excision might not be easily practicable, or where the patient's fears might induce her not to admit of its being performed. Levret seems to entertain some objections to this practice, on the ground, perhaps more fanciful than well founded, of the liability of applications of this kind to generate, or to increase an already existing disposition to malignant action. "Experience has often proved," he observes, "that these excrescences, when they have already acquired a certain degree of solidity, approaching to that of scirrhus, or if become tainted, in any degree, however inconsiderable, by a depravation of the fluids, very easily degenerate into cancers by the application either of the actual cautery or by the use of the corrosive substances usually called caustics." The author believes that these fears are in a great measure, if not totally, destitute of foundation ; and he would therefore be less disposed to object to the use of the actual cautery, on account of the comparative inefficiency of many of the potential caustics, and of the uncertainty of the extent or dangerous excess of action of some others than for the reason suggested by M. Levret.

Of the actual cautery as a means of extirpating pediculated tumours of the uterus he does not however feel competent to offer an opinion ; having never seen it employed as a remedy in such cases. He can indeed easily conceive, that for the treatment of very vascular tumours of that class, with strongly pulsating stems, the actual cautery, skilfully and judiciously employed, might prove a very useful power, and even competent in some cases to rescue life, under circumstances of imminent danger. There is a fashion in surgery as well as in medicine ; and under the sway of its influence, the use of the actual cautery has probably been too indiscriminately proscribed by modern surgeons.

TORSION is only another word for twisting, and it may be easily understood how the action of twisting may be made available for the forcible separation of more slender and lacerable tissues from others of greater weight and substance, or of greater density and firmness of texture. The word however is here proposed to be used in a more general sense, as expressing the idea not only of simple twisting, but also those of forcibly pulling at and wrenching at the same time. This power has not unfrequently been made use of for the purpose of effecting the extirpation of

polypous tumours both of the uterus and of the vagina: and it is a means which may often be made use of for that purpose, not only with great safety, but, in proper cases, even preferably to any other. The case quoted in p. 609 of the 4to edition, may be submitted as an apposite example in confirmation of this statement, and others bearing on this subject will be found in the same work.

The treatment of polypous tumours by torsion of their stems has at different periods been much practised and recommended by writers of no doubtful reputation for skill and practical experience. *Dionis Operat. de Chirurg. Demonstrat. iii. Juncker. Conspect. Chirurg. tab. 101. Heister. Institut. Chirurg. cap. cli. Peyronie, Obs. xxi. et Boudou, Obs. xxii. cités par M. Levret. Mémoires de l'Acad. Roy. de Chirurgie.* The mode of procedure by torsion should not however be considered as one generally to be preferred to every other, and especially to that of tying, followed by section of the stem below the ligature. M. Boudou's case, just referred to in illustration of this practice, may be advantageously perused by the inexperienced reader on account of two or three critical remarks made upon it by Levret, and will be found in the 4to edition of this work, p. 628.

Excision has been practised in two ways, viz. first as a single measure not to be preceded by any other; and secondly, as an auxiliary to the ligature. Anteriorly to the eighteenth century it was probably exclusively employed as a single measure. Since the introduction of the more methodical use of the ligature by Levret, it has on the contrary been almost exclusively employed AS AN AUXILIARY TO THAT INSTRUMENT. As a single measure, however doubtful its claim to the merit of being absolutely and under all circumstances a safe practice, it has been strongly recommended by writers of no little estimation for skill and experience in operative surgery; *Ætii, lib. iv. serm. 4. cap. 104. Fabric. ab Aquapendente Chirurg. cap. 85. Dionis, Operat. de Chirurg. Demonstrat. 3. Platner. Institut. Chirurg. parag. 1447. Tulp. Obs. Medic. lib. iii. cap. 33. p. 247. Water, Dissert. de Sarcom. ex pudend. sect.;* whilst its employment as an auxiliary to the ligature has been still more strongly recommended as well as almost universally adopted by the Continental writers and practitioners of the present and the latter part of the last century.

The practice of excision, as an auxiliary to the ligature, has



of course been chiefly adopted since the introduction of Levret's method of applying that power. Before that period excision was in many cases necessarily employed as a single measure, and therefore probably not very often, until the stem of the tumour came within the practitioner's view, in consequence of the previous extrusion of its body out of the cavity of the pelvis. The fatal result of an apparently simple case treated by section without the previous application of a ligature, (a case in which the excrescent body was not larger than an almond,) had the effect of exciting great alarm in the minds of the practitioners of the period in which it occurred. Its facts were published by Zacutus Lusitanus in the early part of the sixteenth century. *Prax. Medic. lib. ii. obs. 16. Amstelodam. 1634.*

When we consider the circumstances under which the operation in question was performed; that it was performed by an empiric who could have known nothing of the means usually found efficient for arresting hæmorrhages when applied by regularly educated surgeons; that it does not appear from the facts of history that the proper means were really employed to attain that object; that it appears morally certain that if a proper plug had been introduced into the vagina, and there so impacted as to have ensured the application of sufficient pressure even for an hour or two after the operation, against the wounded and bleeding surfaces, that the hæmorrhage which eventually proved fatal, must have been arrested long before it had implicated the patient's life: when we take these several circumstances into our consideration, it really seems most surprising that Zacutus's narrative should have excited so universal a prejudice, as it must be confessed it did produce, against an operation which it only proved to have ONCE terminated fatally. Levret, who lived many years after the time of Lord Bacon, found in the result of this SINGLE OPERATION, a very unfair opportunity, as the author thinks, to pass a sentence of condemnation against all cases whatever of extirpation of polypi by section of their stems.

"This section," he observes, "was followed by a hæmorrhage so considerable that the patient perished from loss of blood. AN EXAMPLE OF THIS KIND is sufficient to induce us to conclude, that to excise these sorts of uterine tumours without having previously tied their stems must be a rash procedure." An induction from the result of a single case cannot surely be admitted as very logical; and moreover one case is as good as another. It hap-

pened to the author, about a year and a half ago, to have been professionally consulted in a case of an excrescent tumour from the vaginal part of the uterus, exceedingly similar in its description to that related by Zacutus, but far different in the result of its treatment. It will be found given at length at p. 631 of the 4to edition of this work.

The tumours best adapted for treatment by excision as a single measure are those with narrow stems, consisting of firm fibrous or ligamentous tissue; together with small excrescences not easily removed by torsion, nor sufficiently distinctly pediculated. Uterine and vaginal polypi of larger volume, and especially if their stems be also large, and their degree of vascularity doubtful, require as a measure of precaution that the pedicles should be tied previously to their excision.

OF THE TREATMENT OF POLYPI BY THE APPLICATION OF LIGATURES TO THEIR STEMS, AFTER THE MANNER OF LEVRET.—It is not known at what period ligatures were first used for the removal of pediculated tumours. But it is well known that it is to Levret that the profession is indebted for the introduction of the practice of applying ligatures to the stems of polypi, when originating from deep-seated cavities and passages. Levret, *Observ. sur la Cure radicale de plusieurs Polypes*, etc., p. 228. M. Levret devised several varieties of instruments to accomplish that object, which the reader may see very accurately and intelligibly represented in the several plates which accompanied his first work published on the subject in 1749. But all his early instruments, in common with certain modifications of them proposed by M. Le Cat and others, were eventually superseded by his celebrated double canula, which, as far as the author knows, he first made public in 1757, in his admirable essay, already quoted, on uterine and vaginal polypi, in the *Memoirs of the Royal Academy of Surgery*, edit. 1. tom. ix. p. 188. Atlas, fig. 1. pl. xx.

In 1768, an inconsiderable addition, scarcely an improvement, was made upon Levret's double canula, by M. Keek; which was an appendage to its inferior extremity of a windlass for gradually tightening the noose of the ligature. See fig. 2. pl. xx. This device was published in the old French Journal for December 1768, vol. xxx.; and subsequently more particularly described and illustrated by an engraving in vol. xxxi. p. 440, of the same work. Atlas, fig. 3. pl. xx.

M. Herbiniaux brought forward his instrument, consisting of

two distinct canulæ, in 1770; the one to be used as a principal, for carrying the loop of the ligature to the stem of the tumour, and the other as an auxiliary, for conveying it round its pedicle, and completing the noose within which it is to be included. In its principle this instrument is, in some respects, simpler than the double canula of Levret; but in its actual mechanism and management it would scarcely seem to deserve that credit. *Traité sur les Polypes de la Matrice, par Herbiniaux, etc.* p. 136, et pl. iv. figs. 1 and 2. *Bibliothèque Chirurgicale, tom. ii.* p. 72. Götting. 1772. The precise amount of its superiority over Levret's instrument is now become a matter of no important consequence; inasmuch as it has long been superseded by the simpler contrivance of Desault.

Like Herbiniaux's, Desault's instrument consists of two principal parts, viz., one to carry up the ligature to the stem of the tumour, and another to convey it round it, so as eventually to leave the pedicle included within a running noose of the cord, capable of being drawn tighter and tighter, until all circulation in the tumour shall have ceased. For further information on instruments for surrounding the necks of tumours with ligatures, see *Obst. Med.*, 4to edition, p. 633.

The practice of extirpating polypi by tying their stems, has prevailed almost universally in Europe since the period of Levret's great improvement in the mode of effecting it. Some diversity of opinion, however, as to the legitimate objects of the treatment by ligature, and also as to the circumstances in which it should be made available, has existed in different countries, and among different practitioners in the same country. In this country it is generally had recourse to as a sole and final measure; whereas in France it has been more frequently employed as a primary and partial measure, and as one of precaution against the loss of blood, when it has been the object of the practitioner to remove the body of the tumour subsequently by excision. The removal of tumours of this kind by excision, without the previous adoption of the precaution here referred to, must be considered in many cases as an unsafe procedure; although it cannot be denied that, of late years, it has been frequently successful for the time in the practice of Dupuytren and other French surgeons; and we are willing, moreover, to acknowledge, that when the neck of the tumour is small, and its



body is found to consist of a hard non-vascular tissue, the method by excision could scarcely be expected to involve the patient's fate in much jeopardy. The employment of the ligature, on the other hand, has not always been an absolutely safe measure. In illustration of this point and of other results not very creditable to our art, see *Obst. Med.* edit. 1. p. 637—639.

Of the numerous recorded cases which are reported to have proved fatal under the treatment by the ligature, it is to be presumed that a large proportion of their subjects may have sunk under the effects of its misapplication and mal-management; and this observation is made without intending any personal disparagement in any quarter; for otherwise it might reach some of the most distinguished practitioners both of medicine and surgery. During the presence of a large and strongly impacted polypus within the vagina, it might be found exceedingly difficult, or perhaps impossible, to ascertain by the taxis the precise source of its origin. Add to this fact, that the actions, both of development and suspension from their source of origin, of pediculated tumours, must often have the effect of bringing after them, to a distance from the natural level of the surfaces whence they spring, certain portions of the more relaxed and distensible tissues of the parts so acted upon. Hence we have known examples of stems of some polypi of which the constituent structure had been no other than so many elongations of the proper tissue of the organ which had given them origin. The honest case of Dr. Denman, reported in his *Introduction*, 4to edition, § v. p. 74, and illustrated in our pl. xxi. B, faithfully copied from the original engraving, furnishes a most apposite example of the fact here stated. In that case the stem of the tumour was a prolongation of a part of the uterus in a state of inversion. But the reasoning must be supposed to apply nearly equally to cases of vaginal polypi in common with those of the uterus; and if such was the fact, it cannot be a matter of wonder that the result should have proved so unfortunate. See a remarkable case which was communicated by Mr. Fordham, of South Audley-street, to the Editors of the *Medical and Physical Journal*, in 1811, in illustration of the danger attendant on a mistaken diagnosis. The narrative is given at considerable length in our *Princip. of Obs. Medicine*, 4to edition, p. 640.

For further information, including reports of many important cases on the subject of uterine polypi, the reader is referred to

the following works:—*Hist. Instrument. ad Polyp. extirpationem, eorumque usus Chirurgici. Auctore E. Klug. Halæ, 1797.*  
*Goertz. de Novo ad ligaturam uteri Instrumento. 4to. Götting. 1783.*  
*Tanner de Polypo feliciter ex utero extirpato. Argent. 1771.*  
*Du Fresne Ligaturæ Polyporum uteri Nova Methodus anteponenda. Paris, 1774.*  
*Hasselburg. Commentatio Chirurgica de Novo ad Ligat. Polyp. Instrument. Gryphysvald. 1788.*  
*Nissen. Dissertatio de Polypis Uteri et Vaginæ. Götting. 1789.*  
*Zeitmann. Dissert. de Signis et Curat. Polyp. Uteri. Jenæ, 1790.*  
*Heinze de Ortu et Discrim. Polyp. Uteri. Jenæ, 1790.*  
*Ph. H. J. Roup. Mémoires sur les Polypes Utérines. Paris, 1809.*  
*London Medical and Physical Journal, vol. iii. p. 1.*  
*Journal de Médecine, &c. tom. xx. p. 245.*  
*Journ. de Méd. etc. tom. xxx. 1769.*  
*Jour. de Méd. etc. tom. xxxix. p. 266.*  
*Jour. de Méd. tom. lxiii. p. 372.*  
*Smellie's Midwifery, vol. ii. collect. 9, p. 73.*  
*Jour. de Méd. par Corvisart, tom. xxv. p. 260.*  
*Bullet. de la Faculté de Méd. No. xiv. 1820, p. 135. et Jour. Gén. de Méd. etc. tom. lxxii. p. 115.*  
*Ephemerid. Germanic. dec. 1. an. 2nda. p. 199.*  
*Halleri Disput. Chirurg. tom. iii. p. 639. Venet. 1755.*  
*Hist. de la Société Roy. des Sciences à Montpellier. Comment. de Reb. in Scient. Nat et Med. Gest. Lipsiæ, 1768. vol. xv. p. 203.*

OF EXCRESCENT TUMOURS FROM THE UTERUS NOT PEDICULATED.

—It has been a usual part of the description of pediculated tumours, that they are essentially the produce of mucous surfaces; and this is generally the fact; but pediculated tumours, of precisely the same tissue, have occasionally been seen to project from serous surfaces into the abdomen and other cavities. In pl. xvi. of the Atlas, there are two views of a preparation, to be at any time seen in the obstetric department of the Museum of Anatomy in University College, where both surfaces of the uterus may be observed to give origin to pediculated tumours of precisely the same character of tissue.

OF TUMOURS OF THE UTERUS NOT PEDICULATED NOR EXCRESCENT FROM EITHER OF THE SURFACES OF THAT ORGAN.—The class of tumours which it is the author's object more particularly to notice under this head, are also for the most part of a membrano-fibrous texture, precisely the same with that of the fleshy tubercle of Baillie. They are ordinarily hermetically included within the proper parenchymatous substance of the parietes of the uterus, possessing in fact a locality which does not approximate to either of the cavities by which they are

bounded. This fact may be seen well illustrated by the knobbed protuberance, marked in both figures 1 and 2, pl. xvi.; as also in fig. 1 of pl. xv. The drawing of fig. 2, of the same plate, represents a tumour of similar character of tissue, which is not pediculated, nor imbedded within the parenchymatous structure of the organ itself, but contained within its cavity, and attached rather loosely by cellular membrane to its interior surface. The section represented to have been made into the substance of the tumour, exhibits distinctly its tissue to have been that of the general class of tumours under which it is placed. The remarkable looseness of attachment of the body of the tumour to the sides of the uterus, and its partial adhesion to the fundus, are pretty successfully represented by the artist. In the preparation itself, the general looseness of the connexion by cellular membrane is more marked, and the adherence at the fundus less strongly expressed, than in the drawing. This part of the case suggested to the author a mode of treatment for a similar tumour in a living subject, for which he was consulted about two years ago; and, although its immediate object failed of success, proved indirectly the means of saving the patient's life. Mrs. L., a widow lady, of about thirty-eight years of age, came from a friend's residence in Surrey, where she had been visiting, to town, on the recommendation of her friend's medical attendant, to consult an obstetric physician for profuse and frequently recurring uterine hæmorrhages, which had nearly destroyed her. The author first saw her at an hotel in Grosvenor-street, in a wretchedly pale and emaciated condition, on the 29th of October, 1831. Upon a careful examination of the tumour, he found it remarkably similarly circumstanced to that at fig. 2, pl. xv. of the Atlas, already referred to.

The neck of the uterus was greatly shortened by the development of the tumour upon it. Its orifice was dilated to the extent of about three quarters of an inch; and the tumour being so large as to block pretty firmly the entire cavity of the pelvis, the inferior part of the mass was very accessible to examination. On attempting to carry his finger round it, or to any considerable distance between it and the walling of the uterus in any direction, the author soon discovered that it was not so loosely connected to the uterine parietes as in the other case referred to. But although differing in degree and extent of attachment, it nevertheless seemed probable, that in the case



under his immediate charge, he might eventually by perseverance be able to separate the tumour from its lodgment within its parent bed, so as to enable him finally to accomplish its extirpation. He, however, soon discovered that the adhesion between the one and the other was exceedingly strong. After having made three unsuccessful attempts to accomplish his object, he was obliged to desist from a further repetition of them in consequence of the accession of severe symptoms.

The probable explanation of this case would seem to be, that the profuse hæmorrhages which constituted so essential a part of it, had for their source the membrano-vascular tissue intermediate between the tumour and neck of the uterus: this tissue, in consequence of being subjected to the results of inflammation, became the medium of cohesion of the two surfaces, and therefore eventually the means of plugging up the arteries or ramules of arteries which had previously furnished the sanguineous discharges. After this perfect arrest of her hæmorrhage, Mrs. L. recovered her former state of health with unusual rapidity. She was visited pretty frequently during the first fortnight of the author's attendance, which commenced about the middle of November 1831, and then occasionally till June 1832, when she left London to go on a tour through Germany, Switzerland, and Italy. She is still a traveller on the Continent, and has ever since her departure from London enjoyed an excellent state of health.

It is well known that the sarcomatous tumour, of which this case was probably an example, is not essentially a malignant disease, and that it proves fatal, which it occasionally does, only in consequence of its mechanical encroachments on the bladder and other pelvic viscera, and its tendency by its bulk to stimulate and to oppress, or otherwise to interfere with the due circulation of the uterine system. It would seem also equally the fact, that the fleshy tumour represented by the case last described, is not to be considered as one essentially of a malignant nature; for although of considerable volume, it was perfectly devoid of sensibility, nor was it the subject of any kind of malignant action.

How far the same description may apply to the greater number of fleshy tumours, not variegated by membranous interlacements, the author cannot positively say, but that they are not all exempt from the liability of becoming malignant at an advanced period of their progress there can be no doubt, whilst probably there

may have existed few varieties of malignancy or of morbid changes of tissue in which tumours of this class have not been known to terminate. In a case of which Pl. xviii. of the Atlas represents very clearly the pathological facts on dissection, there were found imbedded within the substance of a large sarcoma of this kind, several other tumours of a smaller size and of a carcinomatöid tissue.—Represented at d. From the depth of another subordinate tumour, within the shadow on the left of d, there was a constant stillicidium of a sanious brownish fluid, similar to that from a cancerous ulcer, and not easily, if possibly, distinguishable from it. Mr. Abernethy, to whom the preparation was taken for his opinion, stated positively that it was a specimen of true carcinomatous disease. On the liability of sarcomatous tumours to become complicated with changes of tissues deemed cancerous of the same parts, see Levret's Essay on Uterine and Vaginal Polypi; *Mémoires de l'Acad. Roy. de Chirurg.* § vi. p. 571. edit. 1778.

Tumours of this class have been known to degenerate into melanosis; of which fact an interesting example has been reported to the author as having lately occurred in the practice of the Marylebone Infirmary.

It is moreover not uncommon for similar tumours to be converted into osseous and petrous bodies. Analogous to the case here referred to, and of which the pathological specimen may be seen in the Museum of Anatomy of University College, was probably a case recorded by Louis in his valuable Essay on Calculous Concretions of the Uterus, *Mém. de l'Acad. Roy. de Chirurgie*, tom. ii. obs. 13. p. 141. edit. 4to. 1769.

It seems to have been an opinion entertained by the late Dr. Baillie, that these osseous masses found in the uterus are generally the result of the conversion of hard fleshy tumours into bone. "This," he observes, "was the case in the only instance which I have known of the disease; for a great part of the tubercle still remained unchanged; and I think it very probable that such a change most frequently happens where these bony tumours are found."—Baillie's Works, by Wardrop, vol. ii. chap. 19, p. 331.

OF CONVERSIONS OF SARCOMATOUS TUMOURS OF THE UTERUS INTO CALCAREOUS BODIES OF THE SAME ORGAN.—This important disease of the uterus is little more than a variety of the same morbid action by which that organ itself, and its adventitious tissues, have been transformed into bone. These

calcareous bodies, for such we may presume they mostly are, have presented considerable differences of size, form, colour, texture, and character of surface, in different subjects. In the greater number of cases, the surfaces of uterine calculi have been observed to be rough and unequal. This circumstance, in addition to the fact of the mere presence of an adventitious body within the cavity of the uterus, would seem sufficiently to account for the severe pains to which the sufferers from uterine concretions of this class are almost always liable. See Louis' Essay on this subject as published in the second volume of the *Memoirs of the Royal Academy of Surgery*, obs. i. p. 131, 4to edit. When on the other hand the calculus is smooth, small, and not within the cavity of the uterus, but imbedded within the substance of its parenchymatous tissue, it may coexist with a perfectly good state of the patient's health in other respects. Of this fact, there is a preparation in the Museum of Anatomy of University College, which furnishes a most satisfactory illustration. The calculus is a smooth, yellow, oblong body, of the size and nearly of the shape of a kidney bean, and was discovered by accident in the subject of the case during a post-mortem examination consequent upon a disease which could neither have been the cause nor effect of it.

The local irritation incident to the presence of calculi within the cavity of the uterus is such as most frequently to produce much constitutional disturbance. See cases quoted by Donatus, *Hist. Med. Mirab. lib. iv.* and by Schenck, *Obs. lib. iv. De Variis Uteri Affectibus*. M. Louis quotes a case from the *Leipsic Transactions*, communicated by Morus, a physician of Sienne, of a woman who had died of a pleurisy, in whose uterus were found thirty calculi, of which the smallest was of the size of an almond. They were imbedded in different layers of the proper tissue of the uterus. The patient had been long the subject of severe pains in the region of the pelvis. *Acta Erudit. Lips. 1712.*

Some of the cases of ossification of the uterus, which we find recorded, are represented to have been accompanied by profuse discharges of blood, as well as of leucorrhœal and other morbid fluids from the genitals. Louis quotes a case of ossification of the womb which, after the cessation of the menses, had been complicated with hæmorrhoids. The patient had been the subject of tormenting pains for about twenty years.



She at length died of consumption. On opening the body the uterus was found to have acquired the enormous size of a skittle-bowl. Its parietes, with the exception of its peritoneal tunic, were entirely ossified, so as to require to be broken by a hammer. Its interior was charged with purulent matter, having no offensive smell, and resembling thick milk. The same writer refers also to a specimen of a petrified uterus in the possession of M. Verdier, of which the parietes were six lines in thickness. From its internal surface there were numerous petrous projections towards its centre, bearing a striking resemblance to stalactites. Its cavity contained a thick lymph without odour. These appearances, as well as the entire volume of the uterus before it was dissected, are well represented in two engravings, Pl. VII. and VIII., which accompany the writer's valuable essay. *Mém. de l'Acad. de Chirurg.* vol. ii. p. 143. See also the cases sketched at p. 145, and well illustrated by three engravings, fig. 1, 2, 3, of Pl. IX. in the same volume.

In respect to the TREATMENT of the rare disease under consideration, little can be suggested which could be deemed either very useful or satisfactory. Cases of this description might however furnish very important subjects of diagnosis; in so far as an osseous or petrous body occupying the cavity of the uterus might sometimes be distinguished from an actual conversion of the proper tissue of that organ itself, into either of these substances. In the former case it is obvious that the concrete mass might be only so slightly connected with the uterine cavity surrounding it, as to indicate an attempt to effect its removal by mechanical means.

Of the success which might attend operations for the extraction of uterine calculi, on the principle of lithotomy operations, it is impossible to form a correct opinion, from our total want of experience on the subject. The author is only aware of one example of an operation of that kind having ever been performed. Of that case, the brief but interesting history was published in the *Transactions of the Royal Society*, vol. iii. p. 150. Its subject was a poor woman who resided near Trant in Somersetshire. The patient had endured the most intolerable pains during a period of eight years. "I have seen the stone," observed Dr. Beal, who communicated the case to the Society, "and weighed it in gold scales." Its weight was something short of four ounces. The operation proved in every respect successful.

In cases of prolapsion of the uterus, complicated or possibly produced by the presence of a calculus within its cavity, it might be well presumed that the modern operation of LITHOTRITY might furnish very ample means for effecting the removal of the offending body; nor, indeed, does the author see any good reason to doubt the value of the new operation for the relief of any cases of uterine calculi whatever, not confined within cysts nor imbedded within layers of the proper substance of that organ itself.

For further illustration of sarcomatous and other varieties of non-pediculated tumours of the uterus, the reader may consult the following essays and cases. *Dissert. De Calculo Uteri Æt. Tetrabibl. serm. iv. cap. 98. Historia et Cura. Sarcomat. Monstros. etc. Christ. Vater Auctore. Vittenberg. 1693.* A cetaceo-carneous tumour of the uterus, weighing three pounds and a half, by J. Tack. *Ephem. Germanic. dec. iii. an. 7, 8, obs. 152, p. 274.* The excision of a fleshy tumour from an inverted uterus, followed by mortification and death in a few days afterwards, by Theod. Zwinger. *Ephem. Germ. dec. ii. obs. 180, an. i. p. 413.* Joh. Frid. Crellii, *Programma de tumore fundo uteri externe adhærente. Halleri Disputat. Chirurg. tom. iii. p. 634. Edit. Venet. 1755.* De ossibus per uterum excretis. Auctor. Georg. Abrah. Merklin. *Ephem. Germ. dec. 1, obs. 49, p. 77. Lipsiæ, 1677.* A case of uterine calculus which was extracted after death by M. Vicq D'Azyr, *Hist. de la Société Roy. de Méd. 1797, p. 218.* An account of a large bony substance found in the womb, by Dr. Edward Hody. *Martin's Abridgment of the Transact. of the Roy. Society, vol. ix. p. 191.* Many valuable cases not referred to in this article, by M. Louis in his excellent essay on calculous concretions of the uterus, *Mém. de l'Acad. Roy. de Chirurg. tom. ii. p. 130.*

OF THE SUBSTANCES CALLED MOLÆ OF THE UTERUS.—The term mola or mole has been made use of by authors to designate more than one variety of anomalous flesh-like substances found within, thrown out, or removed from, the uterine cavity. It is here intended to confine its application to such irregularly shaped masses as, it is supposed, may be formed within the uterus independently of any disease or diseases of the conceptive function. It is generally the result of a morbid effusion of blood into the uterine cavity; where, in consequence of its being there retained, it speedily becomes a mass of semi-organised fibrine; the coagulation and partial organisation being effects no doubt of deficient

space for the blood so effused, whilst yet fluid, to escape by the natural outlet of the organ, through its cervix and orifice, into the vagina. Thus retained and eventually imperfectly organised, the mass of fibrine becomes more and more compressed, its proper serum, in the mean time, easily escaping by reason of its natural liquidity. After a time, the uterus accommodates itself to its charge, by a gradual development of its parietes; and thus becomes competent, after the lapse of an uncertain period, to the reception and retention of a second effusion of fresh blood. Such effusions may be the result of any cause which could be supposed competent to produce rupture, or excessive dilatation of the orifices of the delicate arteries which are distributed throughout the mucous membrane of the uterus. Hence, consequently, in many cases, the formation of molæ in virgin uteri, as results of excessive determinations of blood into them at the catamenial periods, and more especially in cases of women, whether single or married, subject to menorrhagia. Examples of irregularly oviform masses of this description, consisting exclusively of blood, either in the form of a roundish coagulum invested by a pellucid coating of lymph, or else consisting of an inferior proportion of coagulated blood within, and of a stronger fibrinous coating externally, but yet throughout perfectly devoid of any appearance of a conception, are matters of frequent experience with gentlemen extensively consulted in female diseases.

The masses of this kind, it should be observed, formed within virgin uteri are usually of small size, such for example as that of a pigeon's or a pullet's egg, and therefore most frequently the produce of a single effusion of blood into the uterine cavity. To this rule there are some few exceptions. The uterus, containing the immense mola represented in the Atlas, pl. xxv., was taken from the uterus of a single woman, who, there were good reasons for believing, had never been exposed to the influence of impregnation. It must, nevertheless, be acknowledged, that the most predisposed to these formations, are married women, because liable to miscarriages; sufferers from the consequences of difficult and artificial labours; the mothers of numerous progenies; and persons already, or about to become, the subjects of structural diseases of the uterus. Uterine molæ, essentially the result of effusion of pure blood into the uterine cavity, are sometimes complicated with blighted ova, masses of hydatids, and other



products of a true conception. Their accompanying symptoms are principally those of actual pregnancy, but generally complicated with those of diseased conditions of the uterus itself or of its contents. During the earlier period of these formations, milk is not unfrequently secreted in the breasts; but in the progress of the disease, these organs become less tumid, and therefore less and less indicative of the presence within the uterus of a true conception. The presence of adventitious masses in the womb is often attended by severe uterine pains. Their period of lodgment within that organ is very uncertain, varying between six weeks and a twelvemonth: whereas, in some cases, in consequence of contracting adhesions with the parietes of the uterus, they remain attached to it, to the end of the patient's life. Simple molæ are chiefly dangerous from the profuse hæmorrhages which are apt to accompany their expulsion, and the more complicated ones on account of their being accompanied by structural diseases of the uterus.

OF THE DIAGNOSIS OF UTERINE MOLÆ. — It is not always easy nor even possible, to establish the fact of the presence of these adventitious masses within the cavity of the womb. We are therefore often incompetent to indicate the phenomena by which their presence should be distinguished either from other morbid states of that organ, or from those of true pregnancy. The following statements may, however, assist us in coming to a correct conclusion on these subjects. Gestations with molæ are ordinarily attended during their earlier formation with severer gastric symptoms than those of foetal gestations of a corresponding period. In gestations with molæ there is seldom a perfect suspension of the catamenial function; while this suspension is a characteristic symptom of true and healthy gestations. The presence of molæ in the uterus is seldom unattended by very considerable disturbances in the system, indicated by a dingy paleness of the countenance, great general emaciation, difficulty of breathing on the slightest exertion, rapid prostration of strength, and a corresponding depression of the animal spirits. During the first two months of true gestation the hypogastrium sustains an actual reduction of its former fullness; whilst in the other case, the uterus often becomes developed so rapidly as to present itself in considerable bulk above the pubes at a correspondingly early period.

In the pseudo-gestation, the inferior part of the abdomen is

painful to the touch, harder and more resistant on the application of pressure, and more diffused as to the extent of its development. This form of gestation is moreover usually attended by occasional discharges of pure blood; but more frequently by a continuous stillicidium of an offensive serous fluid: whereas in true gestation the discharge, if any, is much more frequently that of an ordinary fluor albus. In the latter case also the uterus sustains a pretty central locality within the abdominal cavity, whereas in false pregnancy from molæ, the uterine globe is said to fall from side to side and in all directions, as determined by the patient's movements, as happens also in cases of foetal gestations, subsequently to the death of the child. The pseudo-pregnancy is usually productive of much greater disturbance of the functions of the pelvic viscera immediately contiguous to the womb, than is common for them to have to sustain during any period of natural gestation.

The test of the presence or absence of milk is not always in either case to be absolutely depended upon; but its presence in MODERATE ABUNDANCE furnishes a pretty positive indication of the case being one of true pregnancy: the secretion furnished by the breasts, in the case of a gestation with molæ, being very sparing, of only brief duration, and consisting of an almost aqueous fluid. Hippocr. de morbis mulierum.

The period of expulsion of these masses, when their removal is undertaken by nature, is rather uncertain, but in a great majority it occurs within seven months from the commencement of their accompanying symptoms. The mechanism of their expulsion by the uterus, is precisely the same with that which the uterus employs to effect the expulsion of the foetus at the full period of gestation; excepting that, ordinarily, the mola is expelled with less violence and duration of uterine contraction; although at other times the process has been found equally and even more painful than that of natural labour.

There is, however, one important difference between the two processes, viz., that in the one case loss of blood in any considerable quantity, if indeed in any quantity whatever, is not essentially an accompaniment of it; whereas in the other, its actual circumstances being those of a diseased condition of the organ principally concerned, experience proves that uterine hæmorrhage, often profuse, constitutes almost indispensably a part and parcel of it. Nevertheless the loss of blood in the greater number of cases,

although more or less continuous during the entire process, is not so considerable in final amount, as necessarily to place the patient's life in jeopardy.

Hence the PROGNOSIS in cases of this kind, especially under their more frequently occurring circumstances, should be represented as favourable. It should at all events be so considered in cases of molæ of moderate size, and of no long gestation, in women accustomed to the enjoyment of tolerably good health, and not known nor suspected to have been the subjects antecedently of any structural disease of the uterus. On the contrary, the prognosis should be considered as unfavourable, when the presence of the mass in the uterine cavity is accompanied by frequent and profuse discharges of blood; when the patient by these losses is observed to have sustained a serious diminution of general health and strength, accompanied by a corresponding emaciation of her person; when she continues to be uninterruptedly harassed and fatigued by the severely painful affections incident to her condition for many months; the abdominal tumour in the mean time acquiring a rapid accession of bulk; when she is seen to be the subject of a constantly burning and exhausting fever; and lastly, when the case is known to be complicated with a malignant disease of the womb.

Our TREATMENT of cases of molæ has, for its object, first the health of the patient during their presence; and secondly, the extension of such manual and other assistance, as might be best calculated to promote and ensure the safety of their expulsion or removal. During the earlier weeks of cases of this kind, little would be required to be done beyond a judicious management of the functions of the stomach and bowels. After the occurrence of the first hæmorrhage the practitioner would prescribe rest in the horizontal position, and abstinence from all sudden movements or other causes of excitement, and in short the ordinary treatment for cases of early natural gestations similarly complicated.

Hæmorrhage in those cases being, at least, ONE of the most alarming symptoms, the patient should be recommended to reside within a short distance of her own or any other skilful medical practitioner, whose duty it should be to secure her, if possible, from becoming the subject of any serious losses of this kind. During the progress of a gestation with a mola, a time would at length arrive when it would be necessary to come to a conclusion on the subject of an accurate diagnosis.



There are several forms and stages of gestations with molæ, for the proper management of which it might become the duty of the medical attendant to give mechanical assistance. Suppose, for example, a case of this kind to have become complicated with profuse and frequently-repeated hæmorrhages, even at a period of the gestation short of what might be deemed equal to five months of a natural pregnancy; it would be the duty of the medical attendant in such a case to avail himself, as soon as possible, of the best means he could devise for the rescue of his patient from a state of so much danger and insecurity.

For the repression of moderate hæmorrhages under the circumstances here supposed, the dexterous use of the plug might prove exceedingly useful; inasmuch as it might be expected not only to answer its primary intention, that of speedily arresting the hæmorrhage; but also, in many cases, that of disposing the uterus by its presence to complete the process going on within its cavity, and consequently to relieve itself the sooner of its morbid contents.

But we may suppose a case of still greater danger from the profuseness and frequency of the hæmorrhages already sustained. If anything could be done in a case so circumstanced, it seems to the author impossible that there could exist two opinions as to the duty of obtaining all practicable security against such repetitions. The experienced reader in matters of this kind, is aware that we are possessed at least of one very powerful means of attaining our object, viz. that of the operation usually practised in natural gestation, for the induction of premature labour; or at least one founded on the same principle, but slightly modified, to meet the exigency of the case more immediately under consideration. The measure to be adopted, if practicable, would of course be to effect a gradual, but the speediest possible, dilatation of the orifice of the uterus by means of a suitable instrument.

In many cases the index finger will be found the most useful and most convenient instrument for effecting the initiatory part of the operation. When deemed too large, a round and blunted metallic or wooden staff, sheathed and softened by a well-applied covering of leather, of the required size, might be easily substituted. In some cases, the orifice of the womb might be so large as to require, even in the first instance, the use of an instrument of an inch or more in diameter. Its size should be always such as to make it fit the orifice and inferior part of the neck of

the uterus. When duly introduced and carried up to a moderate distance within the shoulder or inferior part of the cavity of the body of that organ, its handle or purchase part should be immoveably secured in that position until it might be necessary to make some change as to its size, position, or mode of application. The presence of such a body, within so irritable a tissue as the cervix of the uterus, might naturally be expected, in the course of some hours, to produce some positive change of condition of the part in question ; such, for example, as an increased action of the mucous glands so numerous implanted within its tissue, a consequent diminution of its natural rigidity, and therefore such an amount of relaxation and susceptibility of further development, as might warrant the introduction of a much larger instrument in its stead. Under a judicious management of this process, we might fully expect that in the course of about twenty or thirty hours, or at farthest, in two or three days, it would have the effect of inducing such a powerfully expellent action of the uterus as might enable it to rid itself completely of its dangerous contents. In the event of a more than ordinary development of the body of the uterus, from the cause, under consideration, it might be naturally anticipated that its cervix should sustain a corresponding extension of its capacity, and even such an extension of capacity as readily to allow the hand of the practitioner to be passed through into its cavity. This advantage, if attained, would at once give to the medical attendant the most perfect practical control over the case.

His first and most immediate object would of course be to effect the separation of the adventitious body from those of the uterine cavity, by the gentlest possible disruption of their connecting tissues ; if perchance such tissues he should have to encounter. If assisted by any co-operating expellent action of the uterus, he would then at once proceed to effect the entire dislodgement of the mass which had been the cause of its morbid development. If not, it would perhaps be his best practice in the first instance to content himself with a good purchase of some part of the mola ; and afterwards, after the lapse of a few minutes, to proceed to draw down most cautiously, and by gradually consecutive movements, until he should accomplish the entire evacuation of the uterus. The occurrence of any considerable amount of hæmorrhage, which might accompany or supervene upon such an operation, should be met on the principles to be hereafter

laid down for the treatment of uterine hæmorrhages at the full period of gestation, subsequently to the birth of the child, and the removal of the placenta.

The artificial removal of smaller masses than we have here supposed, might no doubt be often effected by means of the finger; and more certainly by means of small forceps, so contrived as to make it impossible for their mutually closing surfaces to include within their purchase a single fibre of the proper tissue of the uterus itself.

OF CERTAIN MORBID FORMATIONS WITHIN THE UTERINE CAVITY USUALLY CALLED HYDATIDS OF THE UTERUS. TÆNIA HYDATISM. MOLA HYDATOSA.—These are also masses of irregularly and anomalously organized productions, consisting partly of carneous, but principally of membranous, tissue, found included within the cavity of the body of the uterus. Of late years however they have not been considered to belong to the class of animal substances deemed true hydatids. The commencement of their development is usually found connected either directly or indirectly with the function of conception. They consist of assemblages of membranous bulbs of different sizes, varying from that of a pin's head to large grapes, connected together by minute shreds of ligament and membranous tissues; charged individually with a quantity nearly equal to their capacity of an aqueo-transparent fluid. They are generally the accompaniments, as also probably the results, of blighted and other diseased forms of unproductive gestations; or if we admit the fact of their being ever produced independently of any connexion with a contemporaneous gestation, the author feels disposed to the opinion that they must be morbid results of conceptions of antecedent dates.

Modern writers have distributed hydatids into two principal varieties, the solitary and the social. The solitary is exclusively the variety which we meet with in the female genitals, and in the uterus it is always observed to be pediculated. Thus connected by their pedicles, they are ordinarily found in large masses or clusters. In size they vary considerably; some being smaller than millet seeds, others as large as Portugal grapes; whilst some few, on very rare occasions, may be seen to have acquired the size of walnuts. Their form is globular, and ovoid; and the length of their pedicles about the third of an inch. The colour of a mass of uterine hydatids when recently discharged is red, from the blood by which they are stained. When put into water, they



are seen to assume a light pinkish hue; and after having been washed with repeated waters, they present very much the appearance of bunches of ripe white currants. Their constituent tissues are a membranous cyst consisting of three tunics very distinguishable in those of larger size, and a quantity of fluid sufficient to distend them. These coatings are serous, fibrous, and mucous, in the same order as the several tunics of the intestines. The fluid which they contain is limpid. In the very small ones it is beautifully transparent; in those of middle size slightly opaque; and in some of the largest, verging towards a reddish yellow. It has less density than distilled water. It does not redden blue vegetables; nor does it turn the syrup of violets green. It cannot be coagulated either by heat or by acids. It is therefore not albuminous. In this respect it differs from the fluid found within the varices of lymphatic vessels, sometimes mistaken for pediculated hydatids, which is coagulable both by heat and acids.

Of the vitality of uterine hydatids it has been already stated that great doubt is entertained by modern physiologists; although it has been positively asserted by M. Percy, in *Corvisart's Journal de Méd.* for September, 1811, that "immediately after their expulsion from the uterus, upon being plunged into hot water he saw them move, and twist themselves in various directions; but that no sooner were they removed from the water than they instantly perished." Of the actions here imputed to pediculated hydatids of the uterus immediately after their expulsion, it is obvious that it might be very sufficiently accounted for on principles purely mechanical. The water in M. Percy's experiment is acknowledged to have been hot, not simply warm; and it is well known that many substances, totally destitute of life, as clarified quills, pieces of woollen fabric, tanned leather, etc., may easily be made to writhe and twist in various directions upon being exposed to the action of heat.

The symptoms which usually accompany the earlier period of hydatid gestations are precisely like those of the first weeks of natural pregnancy; a circumstance which must obviously make it extremely difficult, if not impossible, to distinguish the one from the other. The patient accordingly sustains a suppression of the menses, loses her appetite, becomes the subject of sickness in the morning, vomitings, loss of flesh, development of the mammæ, accompanied by a secretion of a thinnish milk, and

even sometimes by a distillation in small quantities of the same fluid from the nipples. In some cases the ordinary phenomena, which together produce the great change in foetal gestation called quickening have been observed, or perhaps only fancied to have manifested themselves, accompanied by movements, probably of gaseous fluids, within the intestines, which have been mistaken for the movements of a child in utero. These movements, however, have never been such as to be felt by the patient's husband, or by the hand of the medical attendant, during his practice of abdominal examination. In such a case, moreover, the stethoscope could not enable us to ascertain the existence of vital motion; nor often perhaps distinguish any appreciable difference of condition between an uterus containing an adventitious body like a mola or a mass of hydatids, and another charged with the lifeless remains of an originally living ovum. M. Percy attempted to establish a diagnosis between a true pregnancy and this form of false pregnancy, by founding his distinction on two principal circumstances, attaching exclusively, as he supposed, to the latter variety of gestation. "The first is, that in cases of hydatid gestation, a slight hæmorrhage presents in the second month, returns at uncertain periods, and continues throughout the whole duration of the disease; and the second is, the peculiar state of the neck of the womb, which for some time remains open, and neither changes its form nor its position." Nauch, *sur les Maladies des Femmes*, p. 188. These important symptoms, although plausibly suggested, and really indicative of something unusual and ambiguous in the state of a gestation, are however not sufficiently characteristic of any given peculiarity of that state, to warrant us in the presumption of its being essentially a hydatid gestation. Of these distinctive signs, by no means suggested for the first time by M. Percy, the latter is incomparably the most valuable. Slight hæmorrhages, or rather appearances of blood during the earlier months of natural gestations, are of such frequent occurrence as to make them totally valueless as an indication of any special variety of diseased or preternatural pregnancy.

From the almost absolute universality of the connexion of hydatid gestations with the function of conception, the reader will observe without surprise how small a proportion of its subjects, whose cases have been recorded, had passed the age of child-bearing, or who were so situated as not to be within

the reach of the ordinary circumstances of liability to the influence of impregnation. That the morbid power possessed by the uterus of engendering the diseased masses under consideration, is one which it can only exert in connexion and in co-existing agency with those of its natural functions of conception and gestation, may be further inferred from the extreme frequency of abortive and premature labours consequent upon foetal gestations rendered complicated by the presence of hydatid masses within the uterine cavity. In support of this view numerous cases will be found in the 4th Edition.

There are very few examples of uterine hydatids recorded in books, of which the subjects HAD NOT continued to menstruate up to the period of their date. A case is given by Dr. Dardignac, of a woman who became a subject of the malady at the age of FORTY-SEVEN, and who, "after the mass was expelled, recovered a moderate degree of health." *Journ. de Méd. etc. tom. ix. p. 54.* In the description of this case nothing is said about the catamenia. But the reader is well aware that women often menstruate at and after the age of forty-seven. In the case of another female, whose age was forty-six, we are expressly told that her catamenia had always appeared until the August of the previous year. The abdomen became painful and considerably enlarged, until at length, at a critical moment, she voided a great quantity of hydatids; of which some were as large as pigeons' eggs, and the rest of all smaller sizes. Upon the mass being laid open, a third of it was found to consist of a dingy white matter like pus of a bad quality, having an odour which it was impossible to bear. She continued to void hydatids, to the number of a thousand or twelve hundred, for about six weeks. At length, however, she began to improve in her general health, and her abdomen subsided to its natural size, and in the end she recovered a moderately good state of health." Communicated by M. Berthelot, *tom. lxxxiv. p. 48.*

Cases are rather numerous recorded of hydatid gestations complicated with diseased conditions of the ovaries and other appendages of the uterus. See cases in the 4th Edition.

OF THE DIAGNOSIS OF UTERINE HYDATIDS.—The diagnosis of the uterine malady under consideration is attended with much difficulty; inasmuch as it is known to be often mistaken for, and almost as frequently complicated with, actual pregnancy. The best element of diagnosis from uterine mola



is to be founded on the ages of the parties, which experience has discovered to be the subjects of either disease.

OF THE PROGNOSIS.—The prognosis of the present malady is extremely doubtful. The author has certainly, in his own practice, met with many more cases of recovery than of fatal issue, although of the latter he has seen not less than six or seven in twenty years. The prognosis must be assumed in a great measure to depend upon the nature and importance of any diseased condition of the uterus, or of its lateral appendages, with which the hydatid formation may be complicated. In the case represented in the Atlas, pl. xxiv. it would seem very probable that the patient must have sunk at no very distant period the victim of the diseased condition of both ovaries, even if she had recovered from the immediate effect of the hæmorrhage which destroyed her. Other things being equal, there is more danger when the hydatid masses are of great volume, the result, in most cases, of a more protracted retention of them within the uterine cavity, than when they are of smaller bulk. The danger must also, it is obvious, have a direct reference to the suitability and efficiency of the treatment applied to cases of this kind admitting of a prosperous result.

OF THE TREATMENT OF HYDATID COMPLICATIONS.—The most important part of the practice to be adopted in cases of hydatid gestations should have for its object the security of the patient against the occurrence and effects of losses of blood. It is difficult to prescribe very precisely the period when it might be proper to make our first attempts to effect the removal of a mass of hydatids; but there is no period, however early, when measures should not be made use of to suppress and to guard the patient against the future occurrence of hæmorrhages. The only difficulty in the application of measures of this kind would probably depend upon the possibility of the case being one of foetal gestation, threatening abortion, and not one of hydatid pregnancy. At an early period of natural pregnancy, complicated with trifling discharges of blood, the ordinary practice of recommending rest, and abstinence from stimulant food, and from all other causes of excitement, might be very proper, and prove sufficient to meet the demands of the case; whereas, in cases of hydatid gestations, which are seldom unaccompanied by symptoms of a morbid condition of the uterus, and also of impaired general health, it might be expedient to have recourse to

the use of the plug at a comparatively early period of the supposed pregnancy; for at early periods, in such cases, it not unfrequently happens that profuse losses of blood are sustained. Even in true gestations, it will hereafter be made to appear, that in cases of formidable hæmorrhages, it sometimes becomes indispensably necessary to place the uterus in a situation to relieve itself of its contents at a comparatively early period. A precisely similar practice is applicable to cases of hydatid gestations similarly complicated with dangerous hæmorrhages; and even where it might not be possible to arrive at an absolutely satisfactory diagnosis, it would still become the duty of the medical attendant to have recourse to the operation for the induction of expellent action of the uterus. That operation is to be performed precisely in the same manner, and on the same principle, with that for the induction of premature labour in cases of foetal gestations complicated with successive hæmorrhages, which will be described in its proper place.

Accordingly, in cases of profuse and repeated hæmorrhages, under any circumstances, accompanied by a considerable enlargement of the uterus, it becomes the practitioner's first duty to institute a careful examination, with a view to the establishment of a correct diagnosis. During the presence of molæ, or of masses of hydatids, within the uterus, the orifice of that organ is almost always found UNCLOSED, or at least sufficiently dilated to admit easily of one or two fingers being passed through it into contact with the actual parenchymatous mass, the subject-material of the disease. The only substance with which a presenting body of such a character could be confounded, must be the placenta of a true ovum; which therefore would constitute a case that would require precisely the same treatment, viz. the induction of expellent action of the uterus.

If we assume the orifice and neck of the womb to be sufficiently developed to admit of the gradual introduction of the hand into its cavity, the sooner that could be done compatibly with perfect safety, the better. If, on the other hand, we suppose the uterus to be so rigid as not thus easily to admit the entire hand, it would become the practitioner's duty to effect its development more gradually by a better adapted instrument, such as a round and tapering rod or staff of any stiffish material well covered with soft leather, and thickly coated with wax. The smaller extremity, somewhat rounded, of such an

instrument, should be about equal in diameter to that of the existing amount of development of the orifice of the uterus. By the application of a slight propellent bearing upon it from below, it is pretty obvious that it might be made to produce a proportional amount of developing pressure against the parietes of the orifice and neck of the uterus; and such as might eventually suffice to procure a safe and easy passage for the entire hand into the uterine cavity. With the hand it would then be the practitioner's next duty, by a cautious detachment of whatever morbid tissue he might there encounter, to effect the perfect removal of the whole. For examples of the complications here discussed, see the following references:—Christoph. a Vega, lib. iii. sec. 10, cap. 13, Art. Med. Valleriol. lib. i. obs. 10. Mercat. lib. iii. cap. 8. Nicol. Tulp. lib. iii. cap. 32. Cl. Picart in Zodiac Medic. Gallic. ann. iii. fol. 73. Johan. de Muralto in Scholio ad obs. xcv. dec. 2. Ephem. Germ. an. ii. p. 237. Daniel le Clerc, et Jacobus Munget. Bibliothec. Anatomic. tom. i. part 1, p. 474. Aetii Contract. Medic. Tetrab. xiv. script. 4, cap. 79. Ephem. Germ. decad. ii. ann. 6, p. 332. Ambros. Stegmann de partu in utero materno verminofacto, apud Ephem. Germ. dec. iii. ann. 7, p. 54. Ephem. Germ. dec. ii. ann. 8, p. 130. Commentaries de Rebus in Scient. etc. Lipsiæ, 1790, vol. xxxii. p. 709. Hist. de l'Académie Roy. des Sciences, 1715, p. 75. Gifford's Cases in Midwifery, p. 518. Smellie's Midwifery, vol. ii. collect. 8, No. 3, case 1. American Med. and Philosophic Register, vol. iii. p. 519. Jour. Gén. de Méd. etc. tom. xxiii. p. 254. Journ. Gén. de Méd. tom. xli. p. 109. Mémoires de la Soc. Médic. d'Emulation, tom. iii. p. 321. Transactions of the London College of Physicians, vol. ii. p. 486. Ephem. Germ. dec. ii. ann. 8, p. 130. Ephem. Germ. dec. ii. an 9, p. 73.

OF INFLAMMATION OF THE UNIMPREGNATED UTERUS.—Hysteritis. —Inflammation of the womb may take place under the three several conditions of its vacuity, pregnancy, and immediately after delivery. We have now to consider the subject as an affection exclusively of the unimpregnated uterus. Inflammation of the Uterus, in its state of vacuity, may be either acute or chronic; and under each of these heads might be further distributed a number of specific varieties.

This organ, in common with all other parts and tissues of the living body, is subject to acute inflammation of a simple and non-specific character. That form of the disease, however, is of but



rare occurrence, and is, for the most part, a consequence of accidents or injuries, or of some other influences productive of unusual excitement of the affected organ. The most frequent cause of acute hysteritis in its simplest form is the exposure of the general or genital system to the action of a severely cold temperature during the menstrual period.

Acute inflammation of the uterus generally commences with distinct shivering, accompanied by an exquisite sense of coldness of the parts within the pelvis, and by a deep aching pain of the loins, iliac regions, and the upper parts of the thighs. These symptoms are usually followed by a strong sense of heat and of violent pain in the region of the uterus, not unfrequently exasperated by a bearing-down action of the abdominal muscles. The uterine tissue in the mean time is found exquisitely painful to the touch, as well as perceptibly raised in its temperature. If the inflammation be an effect or an accompaniment of suspended menstruation, the suppression of that function continues, and becomes an essential element of the disease, until the latter shall have been more or less completely subdued by proper treatment. In the greater number of cases, of which the author has been able to learn the facts with adequate precision, the disease was accompanied from the beginning by a profuse muco-sanguineous discharge, remarkable for a strongly viscid consistence; whilst in some few cases the extraordinary phlogosis of the organs has been attended by no discharge whatever. The fever accompanying acute inflammation of the uterus is generally one of high tone, like that of rheumatic fever; with a large, full, incompressible pulse; excepting when the inflammation is propagated into the tissues of the vagina; and then the pulse assumes a more subdued character. Painful and difficult micturition is only an occasional accompaniment of this disease.

THE PROGNOSIS in a recent case of acute hysteritis should be considered as highly favourable, provided it be made the subject of early and vigorous treatment. The proper treatment consists in the application of the several means indicated by the principles of the antiphlogistic system. Of these, the first measure should be general bleeding, carried to fainting. If this should be followed by a perfect subsidence of the pain, nothing further might be required to be done, beyond paying proper attention to the state of the bowels and to the secretions of the system. If, on the contrary, the pain shall not have been entirely subdued, or it should

soon subsequently return, recourse must be had, without loss of time, to local bleeding by means of leeches applied to the vaginal portion of the uterus, in the manner already directed under several preceding articles. The uterus being tensely charged with blood, actually congested into a considerable increase of volume, this procedure must be adopted without delay. In the first instance, the practitioner should content himself with the application of only three or four leeches at a time; for under the circumstances here supposed, FOUR LEECHES will sometimes obtain from the affected organ sixteen or eighteen ounces of blood; and if at any time the quantity thus obtained should fall short of what might be required to effect an entire solution of the inflammation, four or six more leeches, according to the demands of the case, might easily be applied afterwards.

In the event of the local bleeding as now recommended proving insufficient to produce a perfect subduction of the pains and of the other active symptoms, the patient might advantageously go into a bath of a temperature between  $98^{\circ}$  and  $100^{\circ}$ , and there remain until she should feel a slight disposition to faint. After this, the abstraction of blood either generally or locally in the manner already stated might be repeated, or a large blistering plaster, lined with tissue paper, be applied to the hypogastric and iliac regions. The inflammation and its accompanying fever still continuing, recourse should be had to the use of calomel and opium, in quantities sufficient to affect the mouth, or to that of blue pill and digitalis, so as to place the excitement of the heart and arteries under efficient control. By the adoption, consecutively and sufficiently early, of measures of this kind, the most intense cases of hysteritis may be expected in the course of a very few days to be perfectly cured. But if this most desirable result should unfortunately not take place, the inflammation might then indeed be expected to terminate in suppuration, or else to lapse into chronic inflammation of the affected organ. The termination by suppuration is upon the whole a sanative crisis, and not unfrequently a safe and permanent solution of the disease; although it must be confessed that in consequence of the solution of continuity and loss of substance which it involves, it might leave behind it states of tissue which might predispose to future diseased actions.

**CHRONIC HYSTERITIS** is a much more serious disease than acute inflammation of the womb. Chronic inflammation is more dan-

gerous, not only for the obvious reason that it is in its nature chronic, but also because it less admits of the use, and is less obedient to the action, of powerful remedies. The proper treatment of this form of inflammation of the uterus, if not based upon the nature of its cause, should at least have a distinct reference to it. In some cases we know that it is a sequel of acute inflammation of the same organ. In many others it is the result of deficient action, or of diseased conditions of the catamenial function. A similar remark applies to certain abuses as well as to certain diseases of other functions appertaining peculiarly to the sex. Or it may be recognised as an adjunct of diseases of contiguous tissues, or more remotely as an effect of metastasis of morbid actions, and likewise occasionally of morbid matters from distant parts of the body.

As a general principle, the treatment of chronic inflammation of the womb should be founded on two principal indications; viz. first, that of subduing the inflammation; and secondly, that of restoring the patient to her former state of general health and strength. Of these objects, the former may often be attained by repeated but moderate local bleedings, by a repetition of blisters to the hypogastric and iliac regions, and especially by slight charges of mercury, such only as might suffice to produce a perceptible affection of the mouth; whilst the latter might be secured in the absence of organic disease, by the judicious exhibition of bitters and tonics, by rest in the horizontal position within a large and well-ventilated chamber, and by the use of a mild and a principally vegetable diet, and by abstinence on the part of the patient from all possible causes of irritation and excitement. Some mild varieties of chronic inflammation of the uterus are sometimes effects of its prolapsion, and other displacements of it from its natural position within the pelvic cavity. In the greater number of these cases the effect will cease after the removal of the cause. After replacing the womb in its natural situation, it will always require to be there sustained by a suitably adapted pessary. For the successful treatment of contagious and other specific inflammations of the unimpregnated uterus, it is obvious that certain specific as well as more general remedies must be made available. It is well known that the inflammations incident to the malignant diseases of this organ are for the most part in their very nature incurable by any known remedies.

Is the uterus, independent of any known or ascertainable



disease of its proper tissue, liable to any increment of its volume which could accurately be denominated hypertrophy? The author has never met with an example of such a disease. How far the following remarks of Dr. Baillie, *Morbid Anatomy*, fifth edition, p. 382, may bear upon the question, he will leave his reader to judge. "It sometimes happens, although not very often, that the uterus enlarges in its size, and becomes much harder than in its natural state. This change corresponds in some respects to that of scirrhus in other parts of the body, and commonly extends over the whole of the uterus. It is difficult to say to what size the uterus may at length arrive in the progress of this disease; but I have seen it in one case as large as the gravid uterus at the sixth month. If a transverse section be made of the womb in this state, it is found to consist of a hard substance intersected by thick membranes. Ulceration hardly ever takes place in this condition of the uterus. I recollect one instance in which there was some appearance of it; but I may have made this remark too hastily, and may have been deceived. Tubercles are occasionally formed in this state of the uterus; being as it were embedded in its substance; and they have a structure very much resembling that of the uterus itself."

Among the diseases of the uterus in its unimpregnated state we should not altogether omit to notice those of its mucous membrane, including the cellular tissue, by which the mucous membrane is supposed to be attached to its contiguous parenchyma. The mucous membrane of the uterus is especially liable to simple inflammatory action, accompanied by an excessive discharge of its natural secretion; the discharge in question being more or less viscid, or fluid, or limpid, leucorrhœal, purulent, or admingled with red particles of blood, as the nature of the case might be. Several cases of severe inflammation of the mucous membrane of the interior of the body of the uterus, accompanied and possibly produced by the presence of small granular bodies in a state of irritation, are quoted by Morgagni. The same learned author moreover refers to cases of pustular ulcers, as also to minute carunculous bodies, which in the course of his dissections he had met with in the uterine cavity. These several diseased states of the mucous membrane of the womb should be expected to be attended, as they always are, by profuse mucopurulent discharges of a very offensive character. Madame Boivin and her literary associate, have an entire chapter on granular

inflammation of the orifice of the uterus :—" We have seen," they observe, " that ulceration has sometimes accompanied a soft intumescence, a state of inflammatory congestion marked by a deep red colour, ecchymosis, easy escape of blood from the vessels of the part, and extreme sensibility of the os tincæ, with an abundant leucorrheal discharge. We recollect having met with an example of this state of things still more strongly marked, and accompanied by a venereal pruritus so intense as to produce nymphomania, which in its proper place we shall lay before the reader. When the granulations in question are hard, they are then extremely minute, scarcely larger than a grain of sand ; and when they are of larger size, they are often so soft as easily to elude the taxis of persons of little experience in such matters.

There appear to be two essentially different states of parts under which granulations of the os tincæ have presented themselves, which, in respect both to their etiology and indications of treatment, would seem to admit of being very usefully distinguished by the epithets sub-acute and chronic.

To the first class belong cases accompanied by pains and redness. Of these, the pimples or granular elevations, which are discovered by the speculum, are an affection of the labia of the os tincæ. They are seldom very numerous. They are sometimes of about the size of peas, sub-pediculated, of a whitish colour, and very firm ; but more frequently they are of the volume of a grain of millet seed, and then also of a whitish colour, but soft ; and we might almost say vesiculous, very numerous, and always without any appearance of a pedicle. It is the interstices between these pimply prominences that furnish the material of the sanguineous discharge ; which is easily produced by the contact of the speculum in the operation of examination per vaginam, or that which takes place during the act of the sexual congress, or even sometimes in consequence simply of the free use of injections.

To the second, or chronic variety of affections of this kind, belong hard, small, and whitish granulations, with red or reddish heads, without being hard, or rather being somewhat soft, and at the same time miliary ; but without either redness or softness of the os tincæ itself, from which they take their origin.

We should not be justified in asserting that these small excrescences must always be of the same identical character. The contrary, indeed, might be inferred from the fact that their

etiology is not always the same, and that it is often obscure and uncertain, or even presenting points of resemblance to other diseased states of the uterus ; such as to certain results of abortions or of derangements of the catamenial function, etc. They have sometimes appeared to bear a strong analogy to certain varieties of herpetic eruptions, and to other affections of the genitals of more specific characters."

After noticing several presumable causes of these granular inflammations of the orifice of the uterus, such as obstructed menstruation, fatigue from long standing, personal exertions incident to laborious occupations, habitual constipation, hypertrophy of the affected organ, and organic extension of the follicular tissue of the mucous membrane of the part itself, as also possibly of a part of the vagina ; our authors proceed to the detail of divers remedies adapted, as they profess, to the more obvious forms, stages, and varieties of granular inflammations, to be made the subjects of treatment. Local bleeding and emollients are accordingly recommended in sub-acute cases ; tonics and stimulants in chronic cases ; and mercurials for the treatment of diseased affections of analogous appearances when supposed to have been derived from a venereal source. The use of caustics, which they call derivatives, applied to the parts affected through a speculum, is noticed with great approbation. *Traité des Maladies de l'Utérus et de ses annexes*, tom. ii. p. 332.

The natural secretion of the lining membrane of the womb is universally known to be essentially MUCOUS. Yet we have some extraordinary examples recorded of daily distillations, from the female genitals, of immense quantities of SERUM, or at all events, of watery-looking fluids. In gestations with molæ this state of things might appear sufficiently intelligible. But that there should be a daily distillation of a non-viscid fluid from a uterus presumed not to contain molæ nor to have any communication with the peritoneal cavity, is a position in pathology, of the truth of which the author acknowledges he feels some doubt. He has never met with an example of it in his own practice, nor is he aware that any case of the kind ever occurred within the experience of his late obstetric friends, Drs. Denman, Sims, Clarke, or Haighton ; nor indeed in the practice of any competent reporter of such matters within the circle of his present acquaintance.

On the supposition of a morbid intercommunication between



the uterine and abdominal cavities, added to that of an imperforate state of the orifice of the uterus, a consequence sometimes of cohesion of its labia from disease, we may understand how the former cavity may become the reservoir of prodigious accumulations of this description, such indeed as are to be found recorded in books.

Of this variety of dropsy Dr. Baillie gives the following account:—"Water has sometimes been known to be accumulated in the cavity of the uterus in very large quantity. Lieutaud, tom. i. p. 319. p. 333. "In some cases fifty, sixty, or even a hundred pints have been said to have so accumulated. This water is sometimes bloody in its appearance, and sometimes of a yellowish colour. Of its nature I cannot speak particularly, as I have never seen an instance of this disease. I think it probable, however, that the water accumulated in the cavity of the uterus resembles the serum in its properties, AND THAT IT IS POURED OUT BY THE SMALL CURLING ARTERIES OF THE UTERUS. In cases where water is really accumulated in the cavity of the uterus, one must suppose a stricture of the cervix, otherwise the water would escape gradually into the vagina as it is formed. I am disposed to believe, however, that where water has been said to be accumulated in the cavity of the uterus, it has frequently been really in one or more large hydatids formed in that cavity. Dr. Denman had an opportunity of observing a case where water was accumulated in one large hydatid of the uterus." Baillie's *Morbid Anatomy*, p. 394. See a learned dissertation by P. Camper, having for its object to prove that proper dropsy of the uterus cannot exist. *Mém. de la Société Royale de Médecine*, p. 124.

Connected with some diseased condition of the mucous membrane of the uterus, accumulations of gaseous fluids have sometimes been found to distend its cavity. This is an example of a rare disease, and its pathology is not well understood. "The air," observes Dr. Baillie, "is probably formed by the small blood-vessels of the uterus in a manner analogous to secretion, and its properties are at present unknown." *Morbid Anatomy*, p. 394. In this disease the air is seldom collected in large quantities, but escapes from time to time with a noise similar to that which is occasioned by the escape of air from the rectum. This result has in some cases been so exceedingly troublesome as to have proved a cause of seclusion from society. Whatever the change in the action of the affected organ may be, it is always

accompanied by an excessive secretion of a viscid mucus-like fluid. It is not usually considered as an essential cause of sterility, and it is known to have been cured by pregnancy.

When the air secreted becomes totally retained, it produces an important variety of tympanitis. An interesting case of this kind may be found recorded by Dr. Ambrose Stegmänn, in the German Ephemerides, dec. iii. an. 7, p. 56. "The uterus is sometimes observed to counterfeit the phenomena of pregnancy; but ultimately, and when the destined period arrives for its expulsion or escape, instead of the legitimate fruit of conception, only a spurious vapour is produced. Such was the case, he proceeds, of a little woman of my acquaintance, who from the first day to the last of her supposed gestation verily believed that she was pregnant. The ninth month at length arrived. But the anticipated event was once and again put off to a later period; and then the greatest silence was observed as to the birth of the child. In the mean time the bulk of the abdomen of the little woman grew larger from day to day; so that the poor creature was under great apprehension of its rupturing: for she was under the necessity of occupying herself in constant bodily labour. It happened, however, that in about two years and three months after the commencement of her supposed gestation, she was thrown down by a certain dealer in beer, whether in play or not I know not, in consequence of which, she was freed most unexpectedly of her false pregnancy: for when she came down, which she did with great force on her nates, a great quantity of flatus escaped from her uterus with an explosion similar to that of a small fire-piece. Other discharges of flatus succeeding, the abdomen gradually subsided, and it nearly recovered its former size."

In a chronic affection of this kind, in a case of unclosed orifice of the uterus, our principal indication of treatment should be to restore the tone of the affected organ by injecting into its cavity astringent and substimulant fluids three or four times a day by means of a small wooden syringe, having a small pipe of platina attached to it, one sufficiently small to admit of its being passed through the cervix uteri, and of sufficient length to reach the uterine cavity. A solution of nitrate of silver, of gradually increasing strength, might be expected to answer the purpose of this indication as well at least, if not better, than most other solutions of salts and metallic salines that are commonly employed for such purposes. But the practitioner need not confine

himself to the use of any one form or material of injection. Wines, medicated spirits, decoctions, and possibly infusions of sundry articles of the *materia medica*, might generally perfectly safely be made available to his purpose. The remaining indication in the management of a case of chronic tympanitis of the uterus would be to restore the general health, when affected, and it generally is greatly affected by tonic medicines, such as bark with sulphuric acid; and carbonate of iron in half-drachm doses two or three times a day; judicious exercise; travelling; marine residence; the daily use of a tepid salt-water bath, and at another hour of the day a cold water douch, especially applied to the pubes and uterine region. In cases of much general cachexia, might not mercury, exhibited in a sufficient charge moderately to affect the mouth, be advantageously tried?

The DIAGNOSIS between dropsy and tympanitis of the uterus can only be difficult from want of opportunities to make the requisite comparisons; both diseases being of very unfrequent occurrence. The globular body of the distended uterus, in the one case, would necessarily be felt much more weighty than in the other. In the one also there would be a more or less distinct fluctuation to be recognised; whereas in the other there would be the usual feel and sound peculiar to elastic bodies. Pomme, in his *Treatise on Nervous Diseases*, remarks of one of his hysterical patients, that her body could not be made to sink in the water of her warm bath. In cases of gas being generated by the uterine cavity, without being subsequently retained, no operation like that of paracentesis could be necessary; inasmuch as the accumulated flatus might reasonably be expected to escape without the intervention of any operation whatever. Portal, in his *Anatomie Médicale*, records a case illustrative of this result: "A young woman, aged twenty-three, whose menses had been suppressed upwards of six months, and for whom many remedies had been prescribed without effect, was supposed to have become the subject of dropsy. The operation of paracentesis was proposed to be performed upon her. The day for its performance was appointed; the surgeon went to the patient's residence for the purpose of performing it; but upon the patient getting out of bed, it was observed that she no longer needed any operation; her previously excessive magnitude having totally disappeared." *Anat. Médicale*, tom. v. p. 525. Before it could be proper to perform the operation of paracentesis in cases of this description,



it would be necessary to establish with great precision, and beyond all manner of doubt, the diagnosis of the malady, and whether such an operation might not be superseded by a successful attempt to effect an adequate dilatation of the orifice of the uterus. A stricture of limited extent would doubtless often yield to the action of moderate force. A cohesion of surfaces of recent formation, the author can assert from experience, frequently admits of being easily separated by a very small amount of force properly applied by a well-adapted instrument.

## CHAPTER VIII.

## OF MALIGNANT DISEASES OF THE UTERUS.

OF CANCER.—CARCINOMA.—The disease which the author proposes here to treat of, commences with an indolent induration of the part which is eventually to become the seat and subject of it. The specific induration here intended, is expressed by the term *scirrhus*: many writers having considered *scirrhus* as the first stage of cancer. The term *scirrhus*, *σκήρρος*, is of Greek origin, signifying primarily a piece of marble, *FRAGMENTUM MAR-MORIS*.

According to some of the older writers, a *scirrhus* should have the following properties:—1st, those of hardness and renitency, resisting the touch; 2nd, indolence, or insensibility even to pressure; 3rd, the absence of a tendency, during the earlier stage of its development, to any change of colour of the affected part; 4th, a subsequent tendency to produce a livid hue of the part diseased; 5th, a slow progress of the disease by very gradual congestion; and finally, the absence of heat of the part during the earlier period of the congestive state, and until the indolent stage of the disease is about to be followed by the painful one.

*Scirrhus* tumours of readily accessible parts most frequently commence with minute hardnesses, often not larger than pin-heads, unless occasioned by external injuries; when the tumour, upon being first felt, is found of the size of a nutmeg, or even of a walnut; whilst *scirrhus* indurations of inaccessible tissues, as of the uterus, are seldom discovered until they become much more diffused in their extent; when also for the most part they first become objects of professional attention. The boundaries of *scirrhus* tumours are sometimes observed to be surrounded with *œdema*, or inflammation, even when the tumours themselves are in a state of perfect indolence; and then the epithets *œdematous* and *phlegmonic* have been added by precise writers to distinguish these states; whereas that of simple has been employed when the disease presented an exclusiveness of locality unaccompanied by any surrounding inflammatory or *œdematous* action. The volume of a *scirrhus* tumour is often easily dis-

tinguished, especially in the breast; and then it is said to be circumscribed. When, on the other hand, it is deeply seated, its exact boundary is sometimes not to be ascertained in the same manner; and in such cases it is said not to be circumscribed.

OF SOME OF THE PRINCIPAL OPINIONS WHICH HAVE BEEN ENTER-TAINED OF THE NATURE AND PROXIMATE CAUSE OF CANCER.—Under this head the reader will find ample information in the 4to edition. The prescribed limits of the present work preclude the possibility of entering upon it with sufficient advantage to the reader. See 4to edition, pp. 700 to 732 inclusive.

CARCINOMA OF THE UTERUS.—The uterus is probably subject to the invasion of carcinomatous action under all its forms. The author has seen examples of almost all the varieties of it enumerated by Professor Carswell; but he considers it the subject of scirrhus incomparably more frequently than to any other variety. It therefore enjoys no immunity from this form of malignant disease, as seems to be assumed for it by Dr. Hodgkin in the following passage:—"Since the fibres of the uterus rarely contract, excepting during parturition, we need not be surprised to find that the scirrhus tumours developed amongst them are very far from being similarly modified to those which I mentioned as being formed amongst the ordinary muscular fibres, as for instance in the deltoid or the masseter. To the little susceptibility which the uterus exhibits with respect to morbid actions, we may most probably attribute both its own immunity from the scirrhus affection, and the absence of constitutional taint." *Medico-Chirurg. Transact.* vol. xv. p. 332. This non-liability, or little susceptibility, of the uterus to the form of malignant disease in question, must surely be exceedingly overstated. Were the author to found his opinion as to this point on his own professional experience, which he acknowledges might not be a perfectly fair test of strict truth in such a case, it would be that women are as liable to scirrhus of the uterus between the ages of forty and fifty, as individuals of either sex are subject to tubercular consumption of the lungs between the ages of seventeen and twenty-seven.

Medical practitioners are seldom consulted for scirrhus of the uterus during its first or indolent stage; and its existence is often a matter of presumption from facts collected at our first professional interviews with patients of this class after it has become no



longer doubtful that an insensible induration and intumescence of the uterus must have existed for many months, and possibly for years, before the actual accession of the painful and inflammatory form of the disease. At other times we not unfrequently encounter already-developed scirrhusities of the womb during examinations instituted for other purposes; such scirrhusities being sometimes preceded by indistinct or anomalous symptoms of uterine irritation. It is indeed a positive opinion of some practical writers on cancer that it is almost always an effect of some irritating condition antecedently of the parts affected or of some immediately adjoining tissues. Of many such REPUTED CAUSES it would often seem exceedingly difficult to say whether and when they should be placed under the head of CAUSES, and not under that of effects of a pre-existing structural derangement of the organ itself.

The development of the painful stage of cancer at about what has been called the critical age, is often indicated by an excess of sanguineous discharge during the menstrual period, or by an excessive frequency or irregularity of occurrence of such periods; whilst their intervals are occupied by discharges of a more morbid character, and although designated leucorrheal, consisting of all varieties of colours and consistence. These hæmorrhages and drainings are not unfrequently accompanied by a sense of weight and fullness of the hypogastric and inguinal regions, and also occasionally by aching pains about the sacrum and upper part of the thighs. The general health, however, is observed for some time not to have sustained any material injury. Five or six months are usually suffered to pass without any remarkable attention being determined to the state of the uterus. In other cases an inconvenient sense of heat is felt at the orifice of that organ, and yet in others that of a peculiar pruritus extending, as it has been sometimes described, from the loins to the external genitals. About this period sexual intercourse becomes painful, and in many cases is followed by the escape of a few drops of blood. Moreover the orifice of the uterus is found to be in some degree dilated. The whole of the vaginal part of that organ may often be recognised to have attained an increment to its original volume, and its tissue to have become more solid and resisting. In many cases there is at the same time to be distinguished an eversion of the anterior labium, and in some few, of both labia of the uterine orifice. This is a circumstance

which may be depended upon as an indication of the disease being genuine cancer of the uterus, almost as much as the subsequent lancinating pains which are universally admitted to be characteristic of it. In the mean time, or shortly after, these identical pains supervene. They are usually described as having the whole of the uterine region for their locality, shooting dartingly across and in different directions throughout the affected organ; and as being propagated in many cases to the groins, hips, and upper parts of the thighs. They are of course exceedingly exasperated during the efforts which are almost always necessary to be made to evacuate the contents of the bladder and rectum, as well as by any considerable pressure applied to the hypogastric region. If the subject be comparatively young and plethoric, the hæmorrhages are more frequent and copious, and usually present themselves to a late period of the disease. In other cases, as when the patient is of a more advanced age, or has ceased for one or two years to have been the subject of the catamenial function, her losses of blood are usually less abundant, and appear so frequently to occur at regular periods as greatly to simulate menstruation. In a very short time, however, subsequently, the true character of the malady will be made manifest by the accession of the phenomena incident to the third or last stage of the disease.

The second or inflammatory stage of cancer at length terminates in suppuration, and thus the scirrhus tumour of many months or years' duration, is finally transformed into open and incurable cancer. When this important change takes place, it forms a manifest crisis in the history of the disease. Up to this period, the powers of assimilation and nutrition had remained moderately healthy, and the moral faculties had retained their wonted vigour. The entire economy is now destined to sustain a reversal of its previous state. The usual indications of a healthy and moderately full habit disappear. The patient's attitude assumes an expression of feebleness. The skin becomes of a dingy brownish paleness, and appears bereft of its natural smoothness and firmness, and as if detached from its corresponding subjacent tissues. Sometimes the face may be observed to be a little bloated or full, as if charged with more than its ordinary quantity of serous fluid. The great paleness of the complexion, the lank and tarnished appearance of the hair, and the spiritless aspect of the patient, constitute altogether an expression of

countenance which no attentive observer can easily forget. About this time the appetite becomes greatly impaired. Harassing vomitings supervene, sometimes followed by diarrhœa, and at others by a constipated state of the bowels. During the day the skin is for the most part dry and slightly harsh to the feel, whilst during the night, and especially towards the morning, it is drenched in a profuse perspiration.

As the discharge from the uterus becomes more ichorous and abundant, the prostration of the patient's strength becomes more and more marked, the pulse becomes more feeble and frequent, she enjoys less and less sleep; and upon examination being made, the extent of the ulceration and destruction of the tissues within the pelvis will be found rapidly extending. If the vaginal portion of the uterus was the part of it which was first the subject of scirrhus, it will now be found entirely destroyed, in common with the whole of the cervix immediately beyond it, and possibly the greater part of the body. The destruction extends in all directions, so that soon after the annihilation of the inferior portion of the womb, the vagina, even to its orifice, will be found implicated in the general devastation. In a very brief period of time subsequently to this result, the common wallings between the vagina and the rectum, and between the uterus and the bladder, are broken down, so as to expose the miserable patient to all the horrible consequences incident to the entire loss of control over the sphincters of the alvine and urinary passages. Enfeebled by her profuse and fetid discharges, harassed by her almost never-ceasing torments, and worn down to the last degree of emaciation by the usual alternations of a fatal hectic, she at length ceases to be conscious of her sufferings, and in a few hours afterwards expires. In a certain proportion of cases, death takes place at an earlier period than here supposed, and by the shorter process of one or more profuse hæmorrhages from the uterus.

The length of time during which the uterus may be the subject of scirrhus, from first to last, is very uncertain. The state of indolent scirrhus often exists for so many years as to have induced some pathologists to adopt the distinction, as applicable to this malady, of acute and chronic cancer. When it attacks a younger class of subjects, it is usually considered that the indolent stage, when once roused into painful activity, is more rapid in its progress through its succeeding stages of malignancy than when it presents itself first at a more advanced age: but it



remains indolent for a longer period in the former class of subjects than in the latter.

It is well known that fibrous tumours are generally of a very indolent nature; whereas cases are numerous recorded of UTERINE tumours of that class which had existed for many years without lapsing into a malignant state, and without ever having compromised the general health. In the appearance of the section across a fibrous tumour, and of a similar section made across the body of the uterus in the state of indolent scirrhusity, the author has never been able to discover any appreciable difference. It sometimes happens that scirrhoma attacks, in the first instance, the body of the uterus. When that has happened, for it is rather a rare occurrence, it has been noticed that it had probably existed for a great length of time before its diagnosis had been satisfactorily made out. The proper explanation of this fact the author conceives to be, that the indolent scirrhosis of the uterus is more liable to be roused at an early period of its existence into the next stage of its development, viz., the painful or inflammatory stage, when IT OCCUPIES THE ORIFICE AND NECK OF that organ, which by locality are especially exposed to causes of irritation, than when it affects ITS BODY, which by its locality is less within the reach of such influences.

THE CEREBRIFORM SPECIES OF CARCINOMA OF THE UTERUS is a much less painful disease in its more advanced stages than scirrhoma, but nevertheless more rapid in its progress, and equally certain in the fatality of its event. A principal variety of fungoid cancer was admirably described by the late Dr. John Clarke, about five-and-twenty years ago, under the designation of CAULIFLOWER EXCRESCENCE FROM THE OS UTERI. It being the first published history of the uterine disease in question, the reader will probably be anxious to refer to it. It was published in 1809, in the Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, vol. iii. p. 321.

It does not seem very improbable that certain varieties or stages of this same disease constituted the uterine fungi to which Levret gave the designation of VIVACES. Levret sur les Polypes de la Matrice et du Vagin, Mém. de l'Acad. Roy. de Chirurg. tom. iii. p. 588. M. G. Herbiniaux, Traité sur les Polypes de la Matrice, p. 38.

There is yet another disease of the uterus, which, by reason of its remarkable malignancy, has often been taken for cancer, but

which essentially is a different malady. It consists in a very rapid softening and ulceration of the whole of the uterine tissue ; for which reason it has received the designation of THE MALIGNANT ULCER OF THE UTERUS. See Clarke's Essays, p. 136. Baillie's Works, by Wardrop, vol. ii. p. 323.

Dr. Baillie gives the following succinct but comprehensive description of it. "It is not unusual for an ulcer to be formed in the uterus of a very malignant nature. This is most apt to happen in women at the middle period of life, or at a more advanced age ; but it sometimes happens in women who may still be said to be young. The ulcer generally begins in the cervix uteri ; and the uterus is at the same time somewhat harder and larger than in the natural state. It does not, however, grow to any considerable size. The ulcer spreads from the cervix to the fundus uteri, and it is not unusual to see the greater part of the fundus destroyed by it, the rest being changed into a tattered ulcerated mass. The ulceration is not always confined in its boundaries to the uterus, but sometimes spreads into the neighbouring parts, as the vagina, the bladder, and the rectum ; making communications between them, and producing dreadful havoc."

OF THE TREATMENT OF SCIRRHOMA, AND OTHER CARCINOMATOUS DISEASES OF THE UTERUS.—The inefficiency of the most vaunted remedies for the cure of cancer has been long notorious and proverbial. Of some hundreds of specifics and nostrums of various kinds which have been celebrated for their efficacy in curing cancers, it is therefore quite unnecessary we should even notice more than a very few of such of them as have been recently employed, or are still used by practitioners of eminence. They may all be included under the several heads of mineral, vegetable, metallic, and miscellaneous preparations. The most frequently employed minerals have been those of antimony, sulphur, and arsenic. The muriates of barytes and lime have also of late years been occasionally made use of. It is worthy of observation that the greater number of them have been used both internally and externally. It is generally considered that a poultice, consisting of one part of white arsenic to about twenty or five-and-twenty parts of linseed poultice, bread-and-water, or mashed carrot, forms as efficient an application to a foul cancerous ulcer as any that has been hitherto used or recommended. On the other hand, it has been strongly maintained that a carrot poultice

alone has had the effect of cleansing and abating the foetor of cancerous sores, equally with any combinations of demulcent poultices with arsenical preparations. The muriates of barytes and lime have been chiefly exhibited as internal medicines, and have produced their good effects, when they have produced any, in consequence of their constitutional influence as tonics. Preparations of sulphur and antimony have most frequently been employed in combination with other things, such as vegetable extracts, infusions, tinctures, etc.

The oxides of most of the metals have been exhibited as remedies in cancer; as have also some of their combinations with acids. Of this important class of medicaments, we should consider the carbonate of iron as perhaps the most useful. (Justamond.) Its principal efficiency as a constitutional remedy is probably to be ascribed to its influence as a stimulant of the digestive functions. For the same reason the sulphates of copper and zinc, and the oxide of gold, if the latter indeed can be supposed to have any power at all, see *Dict. de Méd.* tom. iv. p. 200, must be presumed to produce their good effect. Carcinomatous affections of the uterus being often the results, as many authors have supposed, of other diseases of the same or of adjoining tissues, it seems obvious that remedies calculated to relieve the cause might produce, temporarily at least, some salutary influence on its effects; whilst it is well known that cachectic diseases, even of tissue, are often greatly mitigated during the use of tonic remedies.

At one period it was a very common practice to commence the treatment of cancer of the uterus with the administration of mercurial remedies; of which calomel or blue-pill was exhibited internally; and blue ointment and corrosive sublimate, in different forms and strength, according to the object to be attained, both externally and internally. But it should be considered that, about the period alluded to, the diagnoses among certain diseases of the genitals were less clearly understood than they are at present, and that syphilitic ulcers were not unfrequently mistaken for carcinomatous affections of the same organs. However that may be, the author feels perfectly confident that no preparations of mercury have ever cured or even benefited a single case of genuine cancer.

Combinations of some of the metals with the mineral acids, as in the case of the corrosive sublimate just noticed, and of nitrate



of silver, are not uncommonly employed, even at the present day, as remedies for cancer; as also acetic acid with lead. It is scarcely necessary to notice the administration and application of alkalescent substances in supposed cases of cancer, on the principle of the theory which ascribed the origin and cause of cancer to the existence of a superabundance of acid in the system.

Among the hundreds of remedies for cancer derived from the vegetable kingdom, the five or six following may be enumerated as the most important mitigants of the extreme sufferings incident to that disease. They are, without exception, furnished by the class of narcotics, and consist principally of preparations of the poppy, henbane, deadly nightshade, the thorn-apple, hemlock, and foxglove. It is not necessary to go into the extravagant encomiums which have been passed upon these several narcotics, as remedies for cancer. They are all of them more or less soothers of pain and promoters of sleep; but they do not change the actions incident to the disease, nor can they be proved to promote the resorption into the system of the heterologous formations constituent of its cause and development. Of late years the tincture and other preparations of iodine have been introduced to professional notice, as possessed of incomparable deobstruent properties; and the author indeed believes that some kinds of swellings, the precise nature of which he does not take upon himself to define, have occasionally yielded to iodate remedies. But in cases of scirrhus, or any other variety of carcinoma of the uterus, he is quite sure that in his own practice, where he has made extensive trials of them, their exhibition has been attended with no good effect whatever.

The heterologous conversion of structure which constitutes the essence of the malady under consideration, often precedes by many months, or even, as sometimes happens, BY MANY YEARS, the development of its painful stage. Assuming this part of the history of cancer to be a positive general fact, and it is attested by universal experience, it is obvious to a probable inference that the precise date of the development of such painful stage may often essentially depend upon the regimen, mode of life, absence of causes of irritation, and other circumstances of the patient. Accordingly it has been a strongly entertained opinion by some practical writers, that the accession of the painful stage of cancer might often be protracted for some years by rigid abstinence

from the use of stimulant food. The late Dr. John Clarke had a patient who lived eight years after she had first consulted him for a scirrhus of the uterus. She was desired to live on vegetable food alone, and to take water only for drink. Her bowels were moreover kept constantly and somewhat freely open by very small doses of neutral salts exhibited daily. The carcinomatous action was thus so importantly checked and subdued, that the patient, when she died, appeared to sink under the effects of another disease. It frequently happens that the painful stage of scirrhus of the uterus is preceded by a sense of heat and irritation of the os uteri. Such an antecedent might very conveniently be made available as an indication for the use of anti-irritant measures, and such as might be expected to subduct from the heat and excitement of the affected organ. M. Alibert assures us that he CURED a woman, of thirty years of age, of a scirrhus of the uterus, by the use alone of frequent injections of cold water, continued for six months. *Dict. de Méd. tom. iv. p. 199.*

For preventing congestion, and diminishing the amount of an already existing over-fullness of the vessels of the uterus, it is manifest that a most important means will be found in an occasional abstraction of blood from the neighbourhood of the part affected, by means of leeches. To meet the same or a similar indication, the application of vesicatories to the thighs, groins, hypogastric and sacral regions, has been strongly and most plausibly recommended by many writers. To reduce uterine irritation, or a supposed plethora, the author has for many years past confined himself almost exclusively to the occasional use of leeches, applied directly to the orifice of the womb, as already more than once described in the foregoing pages. He thinks that he has met with many cases in which the accession of the painful and ulcerative stages of the disease was put off for several years.

Added to these measures, we should always be anxious to guard our patients against the effects of all local irritations, whether from functional irregularities or any other causes of sexual cachexy. It is in cases of this description that strong lotions, made with nitrate of silver, dissolved in distilled water, and used in the form of injections, have been supposed to produce beneficial effects in the cure of cancers of the womb. The constitutional health in the mean time being made the object of judicious professional treatment, it seems fair to presume, that

patients might in this way sometimes escape the invasion of carcinoma, who otherwise might eventually be overtaken by it. But all useful treatment of cancer of the uterus, thus far considered, amounts to little more than what is strictly to be considered preventive practice.

Hence the disposition which has generally prevailed among surgeons, on whom has usually devolved the professional care of cancer patients, to seek a radical remedy for it by extirpation of the part affected, whenever it has been accessible to such operations. External tumours of a supposed carcinomatous character have been thus disposed of from time immemorial: but excision of any part of the uterus was never thought of as a cure of carcinoma of that organ until it was suggested by the late Prof. Osiander of Göttingen, towards the latter part of the last century, by whom it was performed for the first time on the 5th of May, 1801.

Many cases are recorded of inverted uteri having been removed, some by the ligature, and some by amputation: but the removal of THE DISEASED PART OF A CANCEROUS UTERUS, leaving its fundus behind in a healthy state, and connected as before, with its natural appendages, is essentially a very different operation from that which we find recorded by Wrisberg, in the eighth volume of the Göttingen Commentaries, and some others of the same description which have been since performed. The subject of Dr. Osiander's case was a widow, and her situation was as deplorable as could be well imagined. The vagina was distended by a carcinomatous fungus of the orifice of the uterus AS LARGE AS A CHILD'S HEAD. The fungoid growth was seized and brought low down into the vagina by means of Smellie's forceps: but in endeavouring to put a hoop round the neck of the womb, the fungus broke off, and the bleeding was terrible. The young physicians and surgeons, and a few experienced physicians who were present, among whom Prof. Osiander quotes as a witness Dr. Althof, physician to the Elector of Saxony, advised him to give up the operation, because they believed the woman would not be able to undergo it after losing so much blood. But the patient herself begged that the operation once begun should be completed, and encouraged the professor to continue it, to the great surprise of all present. But as there was no longer any of the neck of the womb hanging down into the vagina by which the uterus could be drawn towards its outlet, necessity, the mother



of many inventions, suggested to the learned Professor the idea of pulling down the uterus, by passing threads through it with a needle, and securing it in this manner till the operation was finished.

Crooked needles were immediately mounted with fine waxed pack-thread, and carried with great caution to the remotest part of the vagina, pushed through it, and through the body of the womb, and then brought out through the inner orifice of its cervical passage; for the neck of the womb, and its external orifice, were already destroyed by the cancerous fungus. In this way, four threads, one from each side, one from before, and one from behind, were carried through, by which the uterus was gently drawn low down into the vagina, and kept fast as soon as it was near the external orifice. Prof. Oslander then introduced a strong Pott's bistouri under the fore-finger of the right-hand, and cut horizontally through the womb ABOVE the scirrhus part, as straight as if it had been divided out of the body, where he could see it. The part which was cut off was preserved in spirits of wine, and along with many other products of similar preparations was exhibited to the Royal Society. The bleeding for an instant was violent; but it was very soon stopped by a sponge saturated with a powder made with equal parts of alum, gum-arabic, and colophony, applied within the vagina. After the bleeding had ceased, sponges, dipped in a solution of sugar of lead and vinegar, were applied to mitigate the inflammation; and as soon as matter was perceived on the sponge, suppurants were employed. Prof. Oslander, for this purpose, made use of a mixture of the extract of unripe walnut shells, with honey and red precipitate; which was introduced on sponges with great caution, so that the anterior part of the vagina was scarcely touched by it. When the discharge was very copious, the quantity of the mixture was to be reduced, and the red precipitate omitted; if inconsiderable, its quantity was to be increased. The recovery after this operation went on so rapidly, with the assistance of tonics, especially the cinchona used internally, that the patient was able to leave her room in the third week of her convalescence. In the fourth week she was able to walk about wherever she pleased. Extracted from the *Göttingische gelehrte Anzeigen*, of August, by Dr. Thomson, Professor of Military Surgery in the University of Edinburgh, and republished by that gentleman in the *Edinburgh Medical and Surgical Journal*, vol. xii. p. 286.

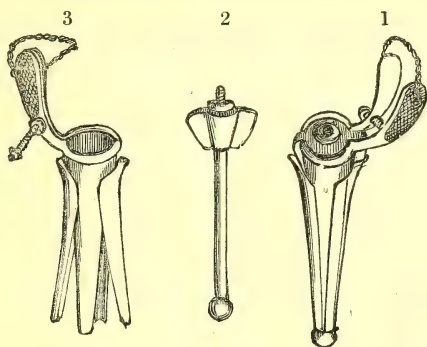
Since the date of the above operation the excision of a portion of the neck of the uterus has been practised some scores, or perhaps hundreds, of times, as well in different parts of Germany as in France; and in the greater number of cases with much TEMPORARY SUCCESS, as in cases of cancer similarly dealt with in other parts of the body. But experience unfortunately proves, that the cure has rarely been permanent, or indeed of any CONSIDERABLE duration; see 4to edition, pp. 751 et seq.

This operation, so frequently performed on the continent of Europe, is little known in England. We are, however, aware of its having been performed in this country, with at least temporary success, some three or four times. But why is the practice discontinued? Is there any reason for believing or hoping that more absolute and permanent cures could be effected by the removal of PARTS only of carcinomated uteri, those for example almost exclusively implicated in the disease, than we find are accomplished by the extirpation of the WHOLE of the female breast under similar circumstances? M. Lisfranc more than once refers to relapses which had occurred in his practice on this subject. Did THESE form any proportion of his eighty-four cases of cures? It is to be reasonably presumed that many cases of scirrhus of the uterus must present themselves even in French public practice where it might be inexpedient to perform the operation of abscision of its cervix, over and above those, from the impossibility of effecting the removal of THE WHOLE of the diseased part, not admitting its use.

What are the circumstances which principally influence the decision of French surgeons in the choice of their subjects? Is it ever their practice to perform the operation before the accession of the painful stage of the disease? If not, it is exceedingly important that the profession should be accurately informed of the proportion of final and permanent recoveries; seeing that distinct information on that subject would eventually lead to correct conclusions on many most interesting practical questions incident to the pathology of cancer. Is the operation under any circumstances a defensible one? Does it ever save life or materially lengthen its duration? Is the life thus saved or prolonged, so far capable of the ordinary enjoyments of existence, as to make it worth the sufferings and anxieties by which it must be purchased?

OF THE TREATMENT OF SCIRRHUS OF THE ORIFICE OF THE UTERUS

BY CAUSTICS.—M. Bayle ascertained by numerous dissections, that in the earlier periods of ulcerations of the orifice of the uterus, the contiguous parts of the cervix, at the distance of two and three LINES from the degenerated tissue, were perfectly sound and healthy in their texture. This fact suggested to him the application to the ulcerated part of an arsenical paste similar to what has been used with advantage in cases of *noli me tangere* of the face. Even before the period here alluded to, or at least before the facts were made public by M. Bayle, *Dict. des Sciences Médicales*, Dr. Recamier, physician to the Hôtel Dieu, had been in the practice of directing a variety of remedial substances to be applied to the ulcerated orifice of the womb. But that skilful physician had not at that time ever ventured to apply caustic to it. His subsequent invention of the instrument, to which he gave the designation of *speculum uteri*, furnished him with the opportunity of having recourse without danger to the practice recommended by M. Bayle. This practice is quoted at length in our *Obstetric Medicine*, p. 757, to which passage the reader is respectfully referred for particulars which are at present becoming daily more and more uninteresting in England. The subjoined woodcut represents the form of *speculum uteri* more particularly



recommended by the author. It will be found to be essentially a modification of that employed by M. Ricord. No. 1 represents the instrument entire and fit for use; No. 2, an artificial gland or contrivance by which the vagina is guarded from any injury which might otherwise arise from the sharp extremities of the instrument; and No. 3 represents the instrument opened, the gland having been removed.

Upon the whole, then, the author is much inclined to the opinion that in the majority of cases of true scirrhus, neither



the practice by excision, nor that of extirpation of the diseased part by caustic, can be depended upon as an absolute and final remedy for cancer. If, however, by either of these resources of our art, the painful stage of a malignant disease can be anticipated, or put off by a timely removal of parts more immediately implicated in the danger of becoming speedily the seat of open cancer, it may become our duty to take the benefit of the one or the other as the variety or stage of the disease may specially indicate. It has indeed occasionally happened that the removal of scirrroid indurations of portions of the uterus has proved finally remedial as to any subsequent developments of the disease in the substance of the uterus itself.

The literature of this subject is so absolutely worthless as to its application to practice, that it could answer little or no good purpose to close the present chapter with a list of references to authorities.

## CHAPTER IX.

## OF THE DISEASES OF THE LATERAL APPENDAGES OF THE UTERUS.

OF THE DISEASES OF THE FALLOPIAN TUBES.—The Fallopian tubes being in fact by structure and function parts of the uterus itself, are subject to many of the same diseases with that organ. Consisting of several varieties of tissue, as blood-vessels, lymphatics, muscular fibres, an investing serous membrane, a mucous lining membrane, and an abundant supply of nerves, we might naturally expect the Fallopian tubes to be frequently the seats of inflammation and its consequences. Morbid anatomy has accordingly furnished evidences that inflammatory affections of these tubes have been almost invariably attendants or consequences of SUPPRESSED CATAMENIA AND LOCHIA. There are moreover few cases of peritonitis, whether during the puerperal state, or at any other time, which are not attended by inflammation of great intensity of the Fallopian tubes.

This state of things is generally very clearly indicated by the presence of pyrexial symptoms, heat of skin especially of the hypogastrium; much pain of one or both of the iliac regions, exasperated by pressure, contact, or by motion of any of the contiguous muscles; deficient secretion of the kidneys, and sometimes difficult and painful micturition; the small quantity of urine voided having the appearance of being deeply tinged with blood.

It is to be presumed that inferior degrees of inflammation of those passages often terminate in cohesion of their internal surfaces, inasmuch as anatomists perpetually encounter examples of imperforate Fallopian tubes in dissections of those parts. Such degrees of inflammation may be supposed sometimes to accompany the intense pain incident to the more violent cases of dysmenorrhea. Cohesion of these surfaces may also attend and succeed to chronic inflammation of the uterus, from whatever cause. The practical pathologist has frequent opportunities of seeing diverse forms of enlargements of these tubes in actual juxta-position with chronic inflammation of the body of the uterus.

Acute inflammation of the Fallopian tubes is sometimes seen to terminate in a sort of rapid sphacelus; and then their interior

passage is seen charged with dark grumous blood. But the more frequent termination of acute inflammation of these tissues is that by suppuration. This is what is most generally met with in cases of peritonitis of the puerperal state.

Mrs. Bedford became the subject of inflammation of the left Fallopian tube, at an advanced period of gestation. She was seen only by a female whom she had engaged to attend her in her confinement. Some hours after the accession of her labour she became deadly faint. The late Dr. Sims was sent for, and arrived just in time to see her die. Mr. Foster, late surgeon to St. Thomas's Hospital, was requested to assist the author, to inspect the body. The left Fallopian tube was found enlarged to the size of a child's arm, and it contained about a pint and a half of a mixture of purulent matter and coffee-ground coloured grume.

Portal, *Cours d'Anatomie Médicale*, tom. v. p. 540, quotes a case from De Haen, of an abscess of one of the Fallopian tubes which contained eighteen pounds of pus. The patient, aged thirty-four, was the subject of a quartan fever, after which she experienced a suppression of her menses. Soon afterwards, a tumour appeared in her left iliac region, which gradually increased in size. Her case was taken for an ascites, and the operation of paracentesis was performed upon her, by which twenty-four pounds of a gelatinous matter was evacuated from the hypogastrium. In the progress of the disorder severe pulmonic symptoms were developed, and she died hectic. On inspection of the body after death, it was manifest that the true seat and origin of the malady had been inflammation and suppuration of the left Fallopian tube.

DIVERS DISEASED STATES OF THE FALLOPIAN TUBES.—The Fallopian tubes have sometimes been found entirely obliterated. Haller, *Element. Phys.* vol. vii. p. 108. Sometimes they are seen enlarged by scirrhus, steatomatous, and bony deposits. Sandifort, *Obs. Anat. Pathol.* n. 58. iv. 64. Baader, *Obs. Med. Anat.* 1763. The veins of these bodies seem much disposed to varicose enlargement.

Their extremities both uterine and abdominal are liable to become obliterated, whilst their interior passage intermediately may retain its permeableness. In such cases their mucous lining may secrete an excessive quantity of a thickish viscid fluid, by which they become distended and greatly enlarged. This constitutes one of the varieties of dropsy of the Fallopian tubes.



But proper dropsy of these tissues consists in deposits of a watery fluid; and of these there are at least three varieties: viz. 1. Those in which the fluid effused is contained within hydatids, attached but not adherent to, nor forming essentially part of the tubes themselves; 2. Those in which it is contained intermediately between the peritoneal tunic and the tube; and 3. Those in which it is found effused into the cavity of the tube, and there retained by both its extremities being hermetically closed by disease. Of these varieties of dropsy, the two former may be considered as common to all parts consisting principally of cellular tissue. They are also almost always complicated with abdominal dropsy. Any of these forms of hydropic deposits must be presumed competent to disturb the functional offices of the genitals; whilst the last must seem totally and permanently subversive of them. Portal cites from Municks the case of a woman who had been the subject of a prodigious enlargement of the abdomen for a period of eighteen years. On inspection of her body after death, not a drop of fluid of any kind was found within the abdominal cavity; but the right Fallopian tube, which formed an enormous cyst, of which the parietes were not less than half a finger's breadth in thickness, contained a quantity of fluid which was conjectured to amount to upwards of a hundred gallons. On its external surface were seen adherent a great number of hydatids. There was also a tumour of the right tube; but it was of a fungoid cartilaginous character, and contained purulent fluid. Harder, *Apiar. Obs.* xxv., speaks of a woman in one of whose Fallopian tubes were found encysted a hundred and forty pounds of an aqueous fluid. Similar histories are recorded by De Haen *Rat. Medend.* vol. vi. Tulp. lib. iv. Lieutaud, *Anat. Méd. obs.* 1603.

"I have seen," says Dr. Baillie, *Wardrop's Baillie*, p. 360, "a hard round tumour growing from the outer surface of one of the Fallopian tubes. This when cut into exhibited precisely the same appearance of structure as the tubercle which grows from the surface of the uterus, consisting of a hard white substance, intersected by strong membranous septa. This, however, I believe to be a very rare appearance of disease."

The symptoms which attend the different morbid changes of the Fallopian tubes are at present not known; and they must from the circumstances belonging to them be very difficult to ascertain.

OF THE DISEASES OF THE OVARIES.—The ovaries are subject, in

common with the uterus and Fallopian tubes, to inflammatory affections of various degrees of intensity. Inflammations of these organs have also been known to exist independently of any similar condition of the uterus itself. M. Portal asserts that he had often met with patients of this class who had experienced all the pathognomonic symptoms of inflammation of the uterus, but who, after the lapse of some time, and subsequently to their apparent recovery, became the subjects of fulness, and in fact of very great intumescence in one or both iliac regions, for which they took various remedies without advantage. On inspecting the bodies of such persons after death, he found the uterus perfectly healthy, whilst the ovary of one side, and in other cases of both sides, together with the ligament or ligaments, round and broad of either or of both sides, presented the appearance of great engorgement. This inflammation is always accompanied by heat and pain, together with more or less tension of the groin and iliac region, corresponding with the locality of the affected organ.

In ovarian inflammation the contiguous broad ligament being more or less engorged with blood, the patient often experiences a sense of vascular fulness and throbbing of that part also, and seeming to be propagated even to the loin and thigh of the same side, there being accompanied by a dull feel of painful rigidity. Such a state of things must be expected to produce symptoms of general pyrexia during the inflammatory stage, and those incident to the process of absorption after the commencement of the suppurative process.

Inflammations of these organs are sometimes so intense as to involve their whole tissue, together with any other that may be immediately contiguous to them, in one common and rapid destruction. Such cases are quickly fatal, and are generally the effects of great mismanagement. More frequently, inflammations of the ovaries present a doubtful and mixed character. See a case of this description recorded by Lieutaud, *Hist. Anat. Méd.* part i. obs. 1494. A woman, aged forty, the subject for many years of a disease of the chest, had a tumour of the hypogastric region, which extended to the umbilicus. She bore it for a long time without much inconvenience. It at length, however, terminated in her death. A body somewhat larger than a man's fist was found in the lower part of the abdomen, which had the effect of displacing the intestines. It proved to be the left ovary. It presented many distinct lodgements of purulent matter.

Sometimes pus is found to occupy the whole of the interstitial spaces among such portions of tissue as may yet remain possessed of any remnant of their original organisation; whilst in other cases the whole substance of an ovary may be seen reduced into a mere shell or cyst of peritoneum, charged with purulent matter. See the Atlas, Pl. xxvii. E. "I have sometimes seen ovaries of the size of a child's head full of pus," observes M. Portal. "This pus is sometimes slightly grumous and whitish, especially when the engorgement of the ovary has had its source in steatomatous infarction." Now, in this latter case, the suppurative process takes place so insensibly as scarcely to be preceded by any pain; whereas, that which takes place in consequence of inflammation of the ordinary tissue of the part, is usually accompanied by very acute symptoms.

It occasionally happens that the purulent matter, when formed in profuse quantities with the substance of ovaries, may have the effect of charging their attenuated parietes to such a degree as to cause them to give way; their contents being allowed to escape into the abdominal cavity. A woman aged sixty had sustained a severe indisposition. Ten years before her change of life she became the subject of a tumour in the right iliac region. At first it was of moderate size, nor was it of very hard consistence. It however increased both in hardness and volume until it arrived at the size of a child's head. It remained stationary at about that bulk for a considerable time; but it increased again, and then went on increasing, until it acquired its ultimate volume; when it became softer also to the touch. The right inferior extremity of it first became enlarged, and subsequently the left. This was followed by an effusion of fluid into the abdominal cavity, which had the effect of somewhat increasing its volume. At length an infiltration into the cellular membrane of the body followed. The kidneys performed their functions feebly. The lower part of the abdomen became greatly developed; although to a late period of the disease the ovarian tumour could be easily distinguished by the taxis. At length a slow continued fever supervened, and the patient died. On inspecting the body after death, there was found generally an infiltration into the cellular membrane, without however any accumulation of a WATERY FLUID in any cavity. But in the pelvis there was observed to be about a pint of purulent matter, of a greyish hue, and a great number of sebaceous whitish concretions. The right ovary also contained some of these bodies, and



we discovered in parts of it some steatomatous indurations. The rest of its substance was DESTROYED. Its peritoneal envelope was very large and very thick, and almost of cartilaginous consistence. It had sustained two solutions of continuity; and it was doubtless at these openings that the pus which it had contained had escaped. The left ovary was something more voluminous than is natural to that of a woman of sixty; and it was of a cartilaginous, or rather perhaps of a scirrhus, hardness.

It is a fact, that ovarian tumours most frequently consist of steatomatous deposits. In some cases, steatomatous substance is indeed exclusively congested within these organs; whilst in others it is found at the same time obstructing the maxillary, the axillary, inguinal, mesenteric, and other glands of the body. It seems probable that the several constituent materials which go into the composition of ovarian tumours are subject to changes and modifications of their peculiar forms; insomuch that a pultaceous substance may assume the character of suet, and the suetty form of degenerescence may soften to a resemblance to honey; whilst this latter may finally degenerate into a state of more or less perfect purulency. In a certain proportion of cases these changes would appear to be so slow, that some women have been known to have been the subject of them for many years, and even to extreme old age, without being materially inconvenienced by them. Nevertheless, compound ovarian tumours are to be considered as preludes to infiltrations into the lower extremities, and eventually to general dropsy.

Steatomatous enlargements of the ovaries may be of such a volume as not only to cause them to occupy the iliac regions painfully; but also to encroach on other viscera, and to fill the greater part of the entire abdominal cavity. This fact might be illustrated by the citation of numerous examples. But the following case, briefly stated by Portal, will suffice. “Madlle. Argant bore, for many years, a tumour in the right iliac region, without its being attended by bad symptoms. She arrived at the age of thirty-five or thirty-six, without experiencing any diminution of the size of her tumour; which at that time had acquired an enormous volume. Her catamenia had been suppressed for some months when I was requested to visit her. She had an obscure fever during the day, which became greatly exasperated at night. She was moreover harassed with a small

dry cough, which exasperated the fever. A colliquative diarrhoea supervened, under which she speedily sank into a marasmus. On opening the body, the right ovary was found larger than a man's head, and very hard. It was full of steatomatous bodies of different densities and colours, and it weighed thirty-five pounds. The tumour was adherent to the peritoneum as far as the liver, and it encroached deeply into the iliac cavity. The uterus was inclined, having its fundus looking towards the left side of the pelvis, as was also the bladder. The left ovary was something less in size than a small apple, and of a firm consistence. Certain indurated portions of the lungs appeared to me to present the character of steatomatous substance; which made me conclude that if our patient had not been the subject of this intumescence of her left ovary, she nevertheless would have been destroyed by pulmonary phthisis, a disease which proved fatal to her brother in about two years afterwards."

Whilst these affections of the ovary remain in an indolent state, and without pyrexial accompaniments, little can be offered in the shape of treatment. When roused by any unforeseen circumstances, or by any gradual developments incident to the lapse of time, into a state of irritation, the patient should be directed to place herself on a reduced allowance of food, confine herself to a vegetable diet, and abstain from the use of all vinous, spirituous, and fermented liquors. If plethoric, it might be advisable that she should lose blood in quantities sufficient for the present relief of local congestion. The iliac region of the side affected might afterwards be treated by a repetition of blisters, and by friction with blue ointment sufficiently to affect the mouth moderately. The iodine and its usual compounds should not be omitted as a last resource.

OF ENCYSTED DROPSY OF THE OVARIES.—The dropsy of these organs varies according to the part of their tissue which becomes the seat of the effusion; for sometimes the fluid is contained immediately within their external covering, without having penetrated in any degree into their proper substance; at other times the fluid is seen to accumulate in the interior of their parenchymatous tissue, whilst in some cases these two forms of morbid deposits are found combined in the same subject. Cases of each of these varieties have consisted of enormous collections of fluid into their respective reservoirs. Writers have given figures and weights of all amounts of value to represent the quantities

of morbid fluid which they have found effused in different cases of the disease, even to eighty pounds and upwards.

The volume of an enlarged ovary has always been found to bear a more or less direct proportion to the quantity which it was subsequently discovered to contain. Ovaries are accordingly described as being of the size of a child's head, or as forming a tumour large enough to occupy the whole abdominal cavity. A case is described in the *Edinburgh Transactions* of ovarian dropsy which, together with the other viscera of the abdomen, formed a tumour of sufficient size to fill the whole ventral cavity, and afterwards to propel the diaphragm into the thoracic cavity to the level of the third rib. In the greater number of dropsies of the ovaries, the parietes of the cysts containing the fluid, instead of becoming thinner by distension, acquire a great accession of thickness, and also a degree of density almost equal to that of cartilage. Moreover, many of those tumours, after having arrived at a certain degree of development, have given way to the pressure bearing upon them, so as to have discharged their contents into the abdominal cavity, and to have formed a species of dropsy analogous to ascites, which has usually quickly proved fatal. A lady who died the subject of great enlargement of the right ovary, was for the last ten months of her life exceedingly harassed by the following symptoms, viz., frequent sickness and vomiting, violent intestinal disturbances, diarrhoea, hæmorrhoids, discharges of blood by the rectum, jaundice, difficulty of breathing; descent of the uterus, from being weighed down by two lateral tumours with its volume diminished by compression. This prolapsion of the uterus was imputed to relaxation of the vagina, and elongation of its natural supporters, the ligaments. Fluid, in considerable quantity, which could be easily fluctuated, was found distending the hypogastrium. The right ovary was full of a steatomatous concretion, of the size of a large melon. In the middle of this tumour there was a non-encysted cavity which contained upwards of two pints of a gelatino-purulent fluid which communicated by two apertures with the cavity of the abdomen. The latter cavity contained twelve quarts of a mixed fluid, of which the principal part was of aqueous consistence.

But the most remarkable variety of what has been usually designated dropsy of the ovaries is the ENCYSTED FORM OF IT. In this disease the tissue of the affected organ is converted into an indefinite number of separate cells or cysts. It is not necessary



to go into a minute description of their morbid anatomy in this place ; see Dr. Hodgkin's Theory as already referred to. This disease is ordinarily one of very gradual progress. Its characteristic cells or cysts may occupy the interior of the ovary, or the peritoneal sac which invests it, or have its seat with the parenchymatous tissue intermediate between these parts. The encysted fluids of ovaries thus diseased, are of all manner of colours and consistence. Sometimes they are red or black, like grume ; sometimes they are semi-coagulated, like gelatine. In some places their contents are limpid and fluid, like water ; occasionally their parietes are semi-cartilaginous ; in some parts we have deposits of steatomatous matter, in others masses of bony structure often organic, as portions of jaw-bones, teeth, etc. See Atlas, plates xxvii. and xxvii. B. Masses of cetaceum, curiously mixed with hair. In some cases the entire ovary seems to be converted into one huge cyst. Atlas, plate xxvii. E, where is shown the membranous parietes of a large cyst after the escape of the fluid which it had contained. The small oval figure is an anomalous tumour within the cyst. The large figure on the left page of pl. xxvii. D, shows the ordinary appearance of cysts forming the structural peculiarity of this disease. The cells in fig. 1, 2, 3, pl. xxvii. F, are laid open to show a variety of such tissues of less frequent occurrence. The small letter e in fig. 1, indicates a dropsical enlargement of the Fallopian tube.

Dropsy of the ovaries is often followed by general dropsy either of the thoracic or abdominal cavities ; more frequently of course by that of the latter, to the formation of which the affected ovary furnishes a direct supply of fluid. " Dropsy of the ovaries," observes Dr. Baillie, " cannot be detected at a very early stage of the disease. But when it has made considerable progress, so as to have formed a swelling at the lower part of the abdomen, it may commonly be ascertained by an accurate examination and attention to the history of its growth. The tumour is generally more on one side of the abdomen than on the other, according as the right or left ovarium is the one affected. There is often an inequality in the surface of the swelling, and an obscure kind of fluctuation is felt on striking with the hand the parietes of the abdomen which cover the swelling. The health is commonly very little affected by this disease ; and it is slow in its progress ; so that life will often be continued with tolerable comfort for many years. The quantity

of the urine is sometimes but little diminished, and the absorbents of the ovarium are hardly capable of being excited to a vigorous action by medicine. There have been few instances therefore of a dropsy of the ovarium being cured." Dr. Baillie's Works, by Wardrop, p. 354.

OF THE INDICATIONS OF TREATMENT OF OVARIAN DROPSY.—The principal indication of treatment would appear to be, to obviate accidental symptoms incident to the development and local encroachments of the disease. It has been proposed to remove the affected ovary by an abdominal aperture; a section to be made through the abdominal parietes for that purpose. In the paragraph just quoted from Baillie's Works, it is expressly stated that dropsy of the ovarium cannot be ascertained in a very early stage of the disease, and if so, it must be a very foolhardy practice indeed, to make a section of the abdominal parietes where there might be even a remote chance of failure on this point. Such a failure however happened a few years ago in the practice of a MILITARY OBSTETRICIAN in Edinburgh.

At a more advanced period of the disease there is another chance of a somewhat opposite tendency to be incurred, viz. that of a contraction of adhesions between the peritoneal surface of the diseased ovary and the peritoneal investments and linings of other parts and viscera of the abdomen; which might render it impossible to ensure, in the event of such an operation, an easy or even a safe detachment of the surfaces mutually adherent. It is unfortunately the fact, that cohesion of the encysted ovary takes place ordinarily at an early period of its morbid development; and that in some cases where little or no activity of the disease had been suspected. If then it be true, that "the health is generally very little affected by this disease," and that it is so slow in its progress that life will often be continued "with tolerable comfort for many years," without any operation, and without interference of any kind, there can be no judicious practitioners who would be induced to recommend a hazardous operation, and still fewer patients, if not imposed upon by unwarranted representations, who might be induced to submit to one as a matter of pure experiment.

There is however another operation of surgery which is sometimes performed with great advantage as a measure of TEMPORARY relief in cases of ovarian dropsy at an advanced stage. The use of the paracentesis however is simply to protract life for a

season, and by mitigating the painful difficulty of carrying on its movements during its remaining modicum of two or three weeks or months longer, to permit the harassed victim to sink more peaceably into her grave. This operation is therefore not only defensible, but absolutely required to be performed as an act of common humanity; and in several cases it has been beneficially repeated many scores, and in a few, some hundreds of times.

The author cannot pretend to recommend any medicine possessing an absolute curative power over ovarian dropsy. There is no known deobstruent which can be expected to demolish the immense fabrics of heterologous architecture which constitute at once the genius and the material of the disease. We know of no greater deobstruent than mercury; but in no stage of development of this disease has mercury ever appeared to exert the slightest influence over this malady. On the other hand, might not mercury be expected to exert an influence over the natural tissues and functions of the body, which would eventually contribute to quicken the morbid activity already engaged in the development of these heterologue formations?

Preparations of iodine and its compounds may perhaps deserve to be ranked among deobstruents. But in no case of encysted dropsy have they appeared to him to have been exhibited with the slightest benefit to the patient.

The indications of treatment of encysted dropsy of the ovaries are therefore extremely few and simple; consisting first in measures of judicious regulation of the general health, with a view to the retardation of the developments incident to the disease: and secondly, in a mitigation of its symptoms; by small bleedings; by local rubefacients; tapping when unavoidable; administering to the regular action of the bowels; the judicious use of opiates to conciliate sleep; and by the use of such mild tonics as may sustain the appetite and soothe and uphold the spirits until the end shall come.

The reader may consult the following references for some of the most curious cases which have hitherto been recorded upon the subject of the disease. A case of ovarian dropsy in a subject, both of whose parents had died of pulmonary consumption. *Corvisart's Journal de Médecine*, etc. tom. xiii. p. 326. A case of ovarian dropsy; the tumour contained innumerable cysts, which included others of inferior size. *Corvisart's Journal*, tom. xvi. p. 9. A case of so prodigious an enlargement of the affected



ovarium, that on the post-mortem examination it was found to weigh fifty pounds; its first enlargement was imputed to the influence of a moral cause. *Corvisart's Journal*, vol. xviii. p. 360. Another case, well described in homely language by Mr. John Paisley, surgeon at Glasgow; the whole contents of the diseased ovary measured six English gallons and a half. *Edinb. Essays and Observations*, vol. vi. p. 296. Dr. Monro's cases, very interestingly told. *Edinb. Essays and Obs.* vol. vi. p. 291. A case briefly but well detailed by Mauriceau, tom. ii. *Append. obs.* 2, p. 2. A case of tuberculated tumour of the right ovary, containing encysted fluid. *Leroux's Journal*, tom. xxxiv. p. 227. The above case was communicated by Gastillier, a surgeon of considerable reputation in his time. He was the reporter also of the following case. The right ovary contained six litres of fluid. *Leroux's Journal*, tom. xxxiv. p. 235. A case of encysted dropsy, accompanied by a displacement of the uterus. The fallopian tubes were parties in the hydropic affection of this case. Communicated by M. Voisin, surgeon in chief of the Civil Hospital at Versailles. *Sedillot's Journal Gén. de Médecine*, tom. xvii. p. 371. A case of ovarian dropsy, which had the effect of producing retroversion of the uterus, communicated by M. Merat, M. D., *Journal Gén. de Méd.* tom. xlvii. p. 310. A case of ovarian dropsy, communicated by Mr. Martineau, of Norwich, to the Royal Society. The disease began to appear soon after a miscarriage, when the patient was in her twenty-seventh year. She first underwent the operation of tapping in 1757, and afterwards had recourse to it four or five times a year until her death, which happened in 1783. In that space of time she was tapped eighty times, and lost 6631 pints of fluid. On dissection, the left ovarium was found enlarged into an immense pouch. The peritoneum was thickened, and in some places ossified; an illustration, in the opinion of Mr. Martineau, of the provision occasionally made by nature for the preservation of animals by thus securing parts, which if suddenly rent might prove fatal; whereas collections of matter are always allowed to make their way out of the body. *London Medic. Journ.* 1784, vol. v. p. 315.

Many interesting cases of encysted dropsy of the ovaries are recorded in the *German Miscellanies* and *Leipsic Commentaries*. The following may be referred to as among the most important: *Ephem. Germanic.* dec. i. an. 9 et 10. p. 54; dec. ii. an. 1. p. 187; dec. ii. an. 2. p. 238; dec. ii. an. 5. p. 430; dec. ii. an. 9. 1690.

p. 171; dec. ii. an. 9. p. 234; dec. ii. an. 10. p. 66; dec. iii. an. 6. p. 167. *Comment. de Reb. in Scient. Nat. et Med. Gest.* vol. iii. p. 657; vol. iv. p. 622; vol. vi. p. 687; vol. viii. p. 697; vol. xii. p. 282; vol. xv. p. 102; vol. xviii. p. 14; vol. xx. p. 282; vol. xxiii. p. 114; vol. xxxvii. p. 243. For additional references consult the 4th edition.

The subject of OSSEOUS AND OTHER HETEROLOGOUS FORMATIONS OF THE OVARIES, which the reader must now suppose to be of no rare occurrence in the human female, is well illustrated in pl. xxvii., and xxvii. B. of the Atlas. Pl. xxvii. exhibits the uterus with its accompanying right ovary much affected by organic disease. The small letter a of fig. 1 is the diseased right ovary; b represents the coronæ of teeth imbedded in its substance. The letters c and d are parts of the general irregular cavity which had given lodgment to ossicula 2, 3, 4, 5, 6. The small e is the uterus; f is a portion of its cervix laid open; g is a hard, tough, fleshy tumour within the substance of its body laid open. In pl. xxvii. B, the reader is presented with another exceedingly well-drawn representation, copied indeed from Dr. Baillie's plates, of an ovary similarly affected. See fig. 1. The small letter a exhibits the peculiar tissue of the ovarian part of the preparation; b the coronæ of two teeth, of which there are two others to be seen on the opposite boundary of the section; m is the whole of the uterus laid open. The different parts of fig. 2, in the same plate, may be easily understood without the aid of a particular description.

Cases have sometimes been met with OF THE ENTIRE ABSENCE OF ONE OF THE OVARIES. See an example of this kind in the 108th volume of the *Transactions of the Royal Society*, p. 108. The case occurred at Paris, and was that of a woman who died six or seven days after delivery, at a lying-in hospital. "On dissection half of the uterus only was found developed, and had all its appurtenances complete; but the other half was hardly developed at all. The edge formed a direct line from the os tincæ, and there was no ovarium nor Fallopian tube of that side, but merely their rudiments. This woman," observed the reporter, "had born twins, which proves that more than one child may come from one ovarium at one conception; and one of these twins was a male and another a female, which upsets the hypothesis of males coming from one, and females from the other ovarium. The paper is accompanied by a beautifully executed

engraving of its subject. Dr. Baillie states that a preparation, showing a deficiency of the ovary of one side, is to be seen in the collection of Dr. William Hunter, which is now at the University of Glasgow." Wardrop's Works of Dr. Matthew Baillie, p. 353.

Some instances have been recorded, in which no vestige of an ovary could be observed on either side. See 4to edition, p. 774.

The ovaries commonly shrink in old age, and are changed in their structure. They are diminished to half their natural size, and somewhat tuberculated and slightly fissured on the surface. When cut into, the vesiculæ Graaffianæ, which constitute a part of their proper tissue during the female's competency for reproduction, come into view. These become charged with a whitish solid substance on the retirement of the power of reproduction.

A merely indurated state of the ovaries is with difficulty determined in the living body. "When an ovarium of this kind has increased to a large size, and lies upon the side of the pelvis, and the person is at the same time of a spare habit, it may in some measure be ascertained by an accurate examination of the tumour, through the parietes of the abdomen. The tumour will feel much harder than when an ovarium is enlarged by dropsy, or filled with cysts. When the ovarium is not capable of being accurately examined, the opinion about the existence of this disease must rest much more on probable evidence than on any clear proof." Baillie's Works by Wardrop, vol. ii. p. 353. "I have found," observes Portal, "the ovaries tumified and indurated, in two women who had never had any children. One of them had been married twice, and at her second marriage to a man who had had children by his first wife." Portal, Anatomie Médicale, tom. v. p. 550. Morgagni also found the ovaries obstructed in a woman who had been sterile. Epist. Anat. Medic. xxxvi. art. 17. This observation of Morgagni has been abundantly confirmed by the experience of other pathologists.

The ovaries are liable to become the subjects of hernial protrusions and prolapsions, both by themselves singly, and also as forming parts of descents of other tissues naturally situated within the pelvic cavity. Camper gives the history of a case of this kind, in which a portion of the right ovary made its escape through the ischiatic notch. Camper de Pelvi, lib. ii. cap. 2, p. 17. Portal mentions a case of umbilical hernia of the left ovary in a woman who died in her confinement. Anatom. Médic. tom. v. p. 556. The case of inguinal hernia of the ovaries, in the practice of Mr. Pott, is pretty generally known in England.



## CHAPTER X.

OF PECULIAR CONFORMATIONS AND OF THE DISEASES OF THE  
FEMALE BREASTS.

AMONG the peculiar conformations of these organs in the human female, is their deficient volume. This non-development of the mammæ, at the age of puberty, has been so remarkable in some cases as to have furnished opportunities to several of the older writers of recording them as examples of their entire absence. Although, indeed, the fact of an entire absence of these organs must be admitted as being possible, experience on the other hand proves that nature has rarely, if ever, been quite absolute in her denial of some traces of their existence to persons adequately distinguished in other respects by the characteristic attributes of the sex.

Again, many examples have been reported of the entire absence or non-development of nipples. Paullini, *Ephem. Germ. Append. an. v. dec. ii. p. 67*, speaks of a young woman, aged sixteen, who had no vestige of a nipple on either breast during her first pregnancy; and who, after her delivery, was obliged to press the breasts with her hand in order to force the milk into the child's mouth through a minute aperture, in the place where the nipple ought to have been. In many cases of this kind the defect will be found, upon accurate examination, more apparent than real; the constituent tissue of the nipple being often discovered to be actually imbedded in the cellular substance of the organ. It is on this principle that the application of artificial suction is almost always found effectual for the eventual development of a somewhat imperfect nipple. In Paullini's case, THERE WAS AN APERTURE at the place where a nipple ought to have been. That aperture communicated, no doubt, with the usual apparatus of lactiferous tubes: in other words, that apparatus existed, but was concealed from view by being embedded more than usually deep in the cellular membrane of the part.

Another, and perhaps upon the whole a more remarkable conformation of the breasts in females, is their occasional excess in

number. It is stated by Prof. Percy, in a memoir on multimamme subjects, *Corvisart's Journal*, vol. ix. p. 378, that Anne Bullein, who passed for an accomplished beauty both in France and England, had not only six digits to each hand, but also THREE BREASTS. Is this latter fact recorded by any English historian? If not, can it be received on the authority of any foreign writer, however respectable? The same essayist cites the case of Julia, the mother of Alexander Severus, as an example of the same conformation, and observes that for that reason she was called Julia Mammea. In ancient Idalia, and formerly in Greece and in Egypt, it is fabled that women were frequently the subjects of the singular conformation here spoken of; in consequence, as has been supposed, of the influence of the statues of Isis and Diana, who were represented as having mammæ without number, on the imaginations of the girls and women who visited the temples of those celebrated divinities; of whom the former, it is well known, was worshipped as the patroness of fecundity, and the latter in the character of Juno Lucina, as the guardian of the function of parturition.

J. F. Lynceus, in his *Commentaries*, observes that "his people went for curiosity to see a woman who had four breasts, all of a beautiful appearance, ranged some above the others in a regular manner, and all affording milk in great abundance."

M. Percy, in the paper already referred to, quotes the report of M. Gardeur, in which that gentleman asserted, that he knew a mulatto girl of about nine years of age, the progeny of a European father by an African female, who bore on her chest four distinct mammæ, of which two were placed in their ordinary situation, and were well formed, and the other two about an inch below and before the armpits, having seven or eight lines of elevation from the general surface of the integument, and from three inches and a half to four inches of circumference, and presenting to the sense of touch a perception, immediately under the integuments, of two smallish glandular bodies, each terminating in a small nipple proportioned to its volume. They very perfectly resembled those of a young girl, when about to enter on the age of puberty. This woman had a child at fourteen years of age, and these accessional breasts furnished a quantity of milk proportioned to their capacity. M. Gardeur had not been able to learn at what age she began to menstruate. According to appearances, however, he believed it must have been

very early, probably when she was eleven or twelve years old. Since that time she always menstruated very regularly.

Under the article *MONSTROSITY* in the Philosophical Dictionary of Voltaire, the reader may meet with a case of similar conformation, accompanied by a prolongation of the coccyx, so as to resemble, to use the language of the original article, the tail of a cow. The subject of this case was exhibited at a show in a fair at St. Germain, whither all Paris went to see her, and paid a high price for their gratification.

Among the innumerable prisoners made by the right wing of the French army of the Rhine in the year 1800, was found an unfortunate female, a suttler, with two children, whose case attracted great commiseration, but who perished from fatigue and exhaustion, in despite of the most devoted professional attention which was paid to her. M. Gorre, an intelligent surgeon in the service, availed himself of the opportunity of examining the body. On removing her body clothing for that purpose, that gentleman observed with surprise that the subject of his intended dissection had *FIVE MAMMÆ*, of which four were prominent and full of milk, ranged in two lines, and each having a very large nipple, of good length, and surrounded by an extremely dark areola. The fifth was not larger than that of a girl under the age of puberty. The authenticity of this case is much confirmed by being accompanied by a well-drawn-up account of the peculiar distribution of the arteries which severally supplied the different *mammæ*.

“Bartholomew Salewsky, a noble Pole, and worthy of credit,” observes Helbigius, *De rebus variis indiciis*, “saw a woman in the island of Macassar, the ancient Celebes, who had her breasts on her back, and used to bring them forward under the armpits to give suck to her child. She firmly declared that this conformation belonged to all her relations.” *Ephem. Germ. dec. i. an. 9, 10. p. 453.* A peasant in the county of Winzenberck, who had two *mammæ* in the ordinary situation, had two more on her back of equal size and similar structure, and also, like the others, giving milk. She had borne twins three times, whom she had suckled both before and behind. *Ephem. Germ. Append. ad an. iv. dec. ii. p. 203.*

A third peculiarity of conformation of the female breast which we find recorded, is a plurality of nipples.



Borellus, in the case of Gabriela Gleise, a multimamme subject already quoted, gives an example of a woman who had two nipples to one breast, which were not distantly situated from each other. A similar case occurred to Holler, and may be seen published in Schenck's work, lib. ii. de Mamillis, obs. 8. p. 304. A woman, who was introduced to Kerkringius, at Amsterdam, as an example of the same conformation, furnished milk from her right breast by two distinct nipples. One of these nipples was situated in its usual place; but the other was attached at a distance of about five fingers' breadth from the ordinary nipple, in the direction of the axilla; and from its inferior relative situation it supplied a greater abundance of milk than the other. T. Kerking. Obs. Anat. xxi. p. 49. Ph. Jac. Sachs à Lewinheimb. Ephem. Germ. dec. i. an. 2. p. 396. A case is mentioned by Paullini, that of a Scotswoman who had three nipples on each breast, which all furnished milk at different times; one breast affording milk in the morning, and the other in the evening. Ephem. Germ. dec. ii. Append. ad an. 5. p. 67. Lanzoni saw a woman, of Romandiola, who had two nipples on the same breast not far apart. Ephem. Germ. dec. ii. an. 10. p. 228. The author may be permitted to observe that he has himself often seen the constituent tissues of what appeared to him to have been two nipples in such close lateral apposition to each other as to have the effect of forming one large double nipple furnishing milk at different points, of an oblong diameter of nearly an inch of surface.

One other variety of the female breast in adult subjects which perhaps ought not to be omitted in an enumeration of its known malformations is inordinate volume. These organs, naturally of very unequal size in different women, are observed in some to become enormously developed INDEPENDENTLY of actual disease. A remarkable case of this description is communicated by Dr. W. Durston in the third volume of Lowthorp's Abridgment of the Philosophical Transactions, p. 80, entitled "A case of very great swelling of the breasts of a maid of twenty-three years of age. In this case one breast weighed sixty-four pounds. After the death of its subject, it was found to contain nothing but the usual component parts." Additional facts and references on the subject of these malformations of the breast will be found in the 4to edition.

Analogous functionally to the state of *mammæ* in some of the cases just enumerated are cases of competency to secrete milk at periods not puerperal, and by women not pregnant, nor nursing, and even by persons far advanced in age; of which the following are references:—In the fourteenth volume of the *Leipsic Commentaries*, we find several interesting cases of this description. See also *Köngl. Vetenskaps Akademens Handlingar*, för 1764, vol. xxv. *Comment. Lipsiæ*, vol. xiv. p. 198. Two similar cases are mentioned by *Diemerbroeck. Anatom. Corp. Hum. lib. ii. cap. 2.* Dr. Thomas Stack affirms, on the evidence of what he saw with his own eyes, that a fact precisely of the same kind occurred to himself in the course of his professional experience. Its subject was a woman of sixty-eight. She suckled her granddaughter, although she had not had a child for twenty years. This case is given at great length in *Martin's Abridgment of the Transactions of the Royal Society*, vol. ix., communicated by R. R. Robert, Bishop of Cork.

On entering on the consideration of the more important DISEASES of the female breast, the author feels fully sensible of the great magnitude of the subject, and of his own perfect incompetence to do it justice. Moreover, the state of professional knowledge upon divers diseases incident to that organ is so very limited and incomplete, that, with one illustrious exception, there are no guides to be met with in this department of pathology competent to conduct us even over its threshold. The reader will immediately identify this exception with the inestimable *Illustrations of the Diseases of the Breast*, by Sir Astley Cooper.

Sir Astley has distributed the diseases of the breast into three classes; viz. 1st, into those which are the result of common inflammation, whether it be acute or chronic. 2ndly, into complaints which arise from peculiar or specific action, but which are not malignant, and do not contaminate other structures; and 3rdly, into those which are not only founded on local, malignant, and specific actions, but which are connected with a peculiar and unhealthy state of the constitution. The first class of the above distribution of tumours of the female breasts we shall have a better opportunity of discussing than at present, when we come to treat of the diseases of the puerperal state.

The several tumours comprehended under the second class of

mammary diseases to which our observations on this subject are intended more immediately to apply, are enumerated under the following designations ; viz. 1st, the hydatid ; 2nd, the chronic mammary tumour ; 3rd, the ossific ; 4th, the adipose ; 5th, the large and pendulous breast ; 6th, the serofulous ; 7th, the irritable breast ; 8th, ecchymosis of the breast.

Of the several hydatid tumours of the breast, the first species of them exists in the form of simple bags containing a serous fluid ; and to these Sir Astley Cooper has attached the epithet of cellulous hydatids. The symptoms they produce are the following. The breast gradually swells, and in the beginning is entirely free from pain or tenderness. It becomes hard, and no fluctuation can then be discovered in it. It continues slowly growing for months, and even for years, sometimes acquiring a considerable magnitude ; as for example, of eight or nine pounds. In other cases, although the bosom becomes quite filled with these bags, it nevertheless never acquires twice the size of the other breast. At first the swelling feels entirely solid, so that it bears a great resemblance to a simple chronic enlargement of the breast ; but after a great length of time, a fluctuation can be discovered in it at one part, and then the breast begins to increase more quickly ; and in several parts similar fluctuations can be detected.

Eventually the cutaneous veins become varicose ; but although the breast enlarges prodigiously, it still continues almost entirely free from pain. But to this fact there are exceptions ; for some persons feel an unusual heat, and some, as the breast increases, suffer pain both in the part itself and in the shoulder. The tumour is extremely moveable upon the pectoral muscle, is very pendulous, and in some cases the whole of the mammary gland, in others only a small portion of it, becomes involved in the disease. At length one of the fluctuating portions of the breast slowly inflames, ulcerates, and discharges a large quantity of serum, or at all events of fluid having the general character of serum, but of a consistence somewhat more glairy. After the sac shall have been emptied, and the external opening closed, if the fluid be entirely discharged, it is a long time before it reaccumulates ; and sometimes the sides of the sac adhere, and the cyst ceases to secrete. In other cases the swelling gives way and breaks ; which is followed by the escape of a mucilaginous



fluid, mixed with serum: and thus several of the cells in succession, and at distant periods, pass through the ulcerative process, and form sinuses, which are very difficult to heal. Excepting during the process of ulceration the general health remains entirely undisturbed, and the person suffers so little, either locally or constitutionally, that her friends do not discover her malady.

The treatment proper for this form of hydatid disease is more negative than positive; for no local applications are beneficial, and the constitution requires no attention, because the general health sustains no injury from the complaint.

If only one bag is discovered, and that is found of considerable size, it may be PUNCTURED with a prospect of advantage; "for it sometimes happens," observes the author of the Illustrations, "that it will not again fill, as will be seen in several of the cases. But when the enlargement is excessive; when the swelling acquires a weight of several pounds; when the breast becomes very pendulous, and drags upon the surrounding parts; when there is great apprehension on the part of the patient of some malignant disease, then it will be good practice to effect its removal. The operation itself is a simple piece of dissection, in which it will be found the best plan to secure each divided vessel in immediate succession to prevent any great loss of blood: but it must be confessed that this is not quite necessary; as the operation does not require much time in its performance, and the vessels can be compressed by an assistant whilst the surgeon is removing the tumour: or if any cyst be suffered to remain, it will still continue to grow, and the remaining part of the breast continue subject to a renewed extension of the hydatid tumour.

The second species of hydatid disease in the breast is stated by Sir Astley Cooper to be very curious, but utterly impossible to be understood without the assistance of a graphic illustration. See Sir Astley's work already referred to, pl. 3. In the case represented, the breast was greatly enlarged, and generally much hardened, by the effusion of fibrine, in lobes, into the cellular tissue. But in several parts it contained bags of serum, and formed fluctuating cysts of various sizes. In each of these cysts there hung a cluster of swellings like polypi, supported by a small stalk; and the little pendulous projections appeared to float in the fluid which had been produced around them in the

different cysts. "Many hydatids were found in a detached state, both in the fluid within the bags, and in the solid matter effused into the substance of the breast; and taking the whole tumour, vast numbers of them had been formed in it.

In its external character this disease resembles the first species of hydatid tumour already described; and the absence of tenderness being the same in both, it will thus be readily distinguished from simple chronic inflammation of the breast. But in the present state of our knowledge, it can only be discriminated by dissection from the former hydatid disease. From the scirrhoustubercle it may be known by the hardness, by the occasional severe pain, and by the broken health, which usually attend that disease; for although in the case from which the present description of the complaint has been given, the tumour on its removal weighed three pounds; yet the general health was good, the absorbent glands in the axilla were unaffected, and there was no other local disease in any part of the body."

It may be further observed that scirrhoustumours very rarely acquire so great a magnitude as the hydatid swelling here described. Many years, indeed, might elapse before the removal of the diseased part might become indispensable on account of its magnitude. In the case of one of Sir Astley Cooper's patients, it had existed fourteen years at the time of the operation.

"Extirpation is the only mode of relief for this complaint: for no constitutional remedy has ever been found to check its progress, and no local application can be used with any prospect of advantage. A puncture into the cyst could afford only temporary relief; but its entire removal by operation is free from danger at the moment, and the patient's mind may be divested of all apprehension of the future."

The third species of hydatid tumours of the breast, agreeably to Sir Astley's distribution of these complaints, is that which is formed by the presence of the animal or globular hydatid. "The animal hydatid is a simple bag containing fluid, and which has no vascular connexion with the surrounding parts, and which produces within its interior a multitude of bags similar to itself. They are often met with in great numbers in the liver: and they have frequently been seen in the lower parts of the abdomen, between the bladder and rectum, where they are sometimes

the cause of retention of urine. This hydatid is contained in a cyst formed in the breast by the adhesive process ; for wherever it is deposited, it excites irritation and becomes surrounded and encased by an effusion of fibrine of a highly vascular texture : and its internal and secreting surface is directly applied to that of the hydatid. A slight moisture exists between them, from their having no vascular connexion.

The hydatid is supposed to be deposited in the structure in which it grows, carried thither by the blood. Into whatever part it is thrown it excites irritation, and becomes surrounded by an adhesive process, by which is formed the cyst in which it is enveloped. The parent hydatid is necessarily supported by a secretion from the internal surface of the cyst in which it is found : but the small hydatids within are probably nourished by the fluids which the parent hydatid contains, so soon as they drop from and cease to be connected with the parent cyst.

When one of these hydatids is produced in the breast, an inflammation is excited in it ; and a wall of fibrine is formed, by which it becomes surrounded. It then feels hard ; and, from the small size of the hydatid, a fluctuation cannot be discovered. But as the hydatid grows, although the quantity of solid matter increases, the fluid in the hydatid becomes nevertheless more abundant ; a fluctuation in the centre of the tumour may be ultimately perceived. When the hydatid has considerably enlarged, it sometimes produces a suppurative inflammation ; and when the matter is discharged, whether by the lancet or by ulceration, the hydatid escapes at the opening. There is in the collection of preparations at St. Thomas's Hospital, a hydatid which was thus discharged by ulceration from an abscess in the breast.

The proper treatment of these hydatid tumours is to make an incision in them, and to discharge the cyst ; after which, a simple poultice will be sufficient to heal the wound ; or if they be punctured and the fluid be discharged, and it should afterwards re-accumulate, a seton may be passed into it, and the sac will slough away. But when the fluctuation escapes observation, and the tumour is believed to be of a scirrhus nature, and the surgeon on removing it discovers the hydatid bag contained within it, he will then be able confidently to assure the patient that she is perfectly free from any future danger."



THE MAMMARY TUMOUR OF THE BREAST, in Sir Astley Cooper's classification, is ordinarily a disease of persons between the ages of seventeen and thirty, for the most part of good constitutions, and is supposed to depend upon some morbid influence derived from the uterus. Its characteristic symptoms are, 1st, its superficial situation relatively to the glandular part of the breast, excepting when it arises from the posterior surface of the breast; and then it is deep-seated, and its peculiar features are less easily discriminated. 2ndly, Its being an extremely moveable swelling, from its being chiefly attached by a portion of tendinous aponeurosis to the glandular structure of the breast, rather than buried within the gland. 3rdly, Its being without pain at its commencement, its presence being for the most part accidentally discovered during the patient's ablutions; and its often continuing to be devoid of pain for many years; although in some cases it does eventually become painful. 4thly, Its being generally not tender to the touch; a rule, however, not without exceptions, especially towards the approach of the monthly period. 5thly, The extreme slowness of its growth. 6thly, The moderate amount of magnitude which it usually acquires. The exceptions to this rule are of rare occurrence: and 7thly, Its entire freedom from malignancy, it being the fact that it has nothing in common in its character with cancer or fungus hæmatodes.

Tumours of this kind may therefore exist for many years almost in a stationary state, and then disappear by gradual diminution. They usually consist of a number of lobes connected together; but with such intermediate depressions as to give to the entire tumour a conglomerate character. The tumour is contained within a fibro-tendinous cyst, of similar texture to what usually envelops and occupies the interstices of the glandular part of the breast. "It grows from the glandular part of that organ, and remains connected with it by a thin process of a similar structure, which is sufficiently loose and moveable to allow of a free motion of the tumour on the breast. When first laid bare, it appears to be composed of large lobes, like those of the breast: but when more completely unravelled, it is found to be formed of smaller and smaller lobes, similar in form, but differing in magnitude; and after a short maceration in water, the lobes are easily separated. The impression made upon the

mind during the dissection of this tumour is, that nature has formed an additional portion to the breast of mammary substance, composed of similar lobes, but differing in structure by the absence of lactiferous tubes. When first opened they appeared red in the circumference, but white in the interior."

The distinguishing properties of the chronic mammary tumour of the breast are, first, the youth of the patient; its subjects being, with few exceptions, between seventeen and thirty years of age: secondly, the absence of pain, or its inconsiderableness when it occurs, for many years: third, its exemption from being accompanied by any constitutional disturbance: fourth, the remarkably slow progress of its development, it appearing to remain all but stationary for many years: fifth, its superficial situation upon the surface of the breast; for it is placed rather on the gland than in it: sixth, its extreme mobility; and, finally, its peculiar LOBULATED feel.

The prognosis of this disease is decidedly favourable. It contains no elements of malignity; and if the patient should be married, and have children, the swelling might be expected to subside during the first lactation.

As the disease is devoid of danger, so its treatment should be very simple; our principal attention being to be determined to the proper management of the functions of digestion. As to local applications, Sir Astley Cooper observes, that "one of the best is the emplastrum ammoniæ cum hydrargyro, if the diseased part be completely indolent: or the iodine ointment may be applied by friction on the swelling, to excite the action of the absorbent vessels." But if there be heat or pain in the swelling, evaporating lotions or simple poultices are most productive of relief. The swelling admits of being removed by a very simple operation; and the disease is not liable to recur, nor to be followed by any serious symptoms. This malady has been illustrated in Sir Astley Cooper's work by brief statements of its facts, including the results of ten different cases.

OF THE CARTILAGINOUS AND OSSIFIC TUMOUR OF THE FEMALE BREAST.—This conversion of the mamma into a bony substance is a result of chronic, and probably of specific, inflammation of it. The following is Sir Astley Cooper's explanation of such formations. "A gelatine is effused, which resembles that which supplies the place of bones in the foetus, and of parts of bones in

infants. This gelatine becomes vascular from its connexion with the surrounding parts. It resembles cartilage in its yellowish whiteness, in its compactness, and in its elasticity ; and still more in its becoming the nidus of bone ; for, as the blood-vessels and absorbents enter it, the latter remove portions of it ; whilst the former deposit in the interstices produced by the absorbents the more solid material of bone, the phosphate of lime ; and when the tumours composed of this structure are steeped in an acid, the phosphate of lime is removed, but the cartilaginous or gelatinous basis remains.”

OF ENLARGEMENT OF THE BREAST, FROM AN EXCESSIVE ACCUMULATION OF ADIPOSE SUBSTANCE ON ITS CELLULAR TISSUE.—Sir Astley Cooper reports that on two occasions he has been required TO PERFORM OPERATIONS for the removal of adipose tumours in this organ. In each case the tumour had acquired a very considerable magnitude. “ In the first, it began at the posterior part of the breast, and grew between the gland and the surface of the pectoral muscle. In the second, all those lobes of fat which are interspersed between the different portions of the mammary gland, and which serve naturally to augment the size of the bosom, and to increase its prominence, became enlarged, and formed a swelling, which, prior to the incision being made, seemed to involve the whole glandular structure of the breast ; but when the operation was performed, the different lobes of adeps, which formed the tumour, could be drawn away from the gland itself.” The separableness of the adipose matter from the gland itself is well illustrated by the facts of both cases. See Sir Astley Cooper’s Illustrations, chap. vi. p. 66.

OF THE SCROFULOUS SWELLING OF THE BREAST.—This forms the sixth species of tumours IN THE SECOND CLASS of diseases of the breast, according to the arrangement of mammary tumours by Sir Astley Cooper. The subjects most liable to this form of enlargement of the mamma are young women of scrofulous constitutions, and such as may have already been affected by enlargement of the cervical absorbent glands. The intumescence is confined to one locality, and occupies only one of the breasts. These tumours are of a remarkably indolent nature, but scarcely tender on pressure ; they are almost entirely unattended with pain. They are, moreover, distinctly circumscribed, and very smooth on their surfaces. In size they vary with the state of the constitution,



diminishing as that improves, and increasing in bulk as the general health becomes deteriorated.

The diagnosis of this form of swelling of the mamma is founded on two easily ascertainable circumstances; viz., the existence of similar swellings of the absorbent glands in other parts of the body; and secondly, the absence of tenderness, which is a never-failing accompaniment of chronic inflammation of the breast. "In some parts," observes Sir Astley Cooper, "they possess vascularity; but in others are incapable of supporting vessels. In some parts they are streaked with blood; in others they appear of a yellowish-white colour, like that of suppuration, although still remaining solid. They produce no dangerous effects, and do not degenerate into malignancy. They do not require an operation; and, indeed, it would not be justifiable to remove them by the knife. But I have seen them so treated by an error in judgment with respect to their nature. When cut into after their extirpation, they are found to be composed of a loose curdy fibrine, very unequally organized." Sir Astley Cooper's *Illustrations*, p. 73. The treatment of the scrofulous swelling of the breast is almost entirely constitutional, and should have for its object the improvement of the general tone of the system, and the invigoration especially of those functions and powers which are presumed to be more immediately conducive to the attainment of that end: such, for example, are those of digestion, assimilation, and nutrition. The local treatment is of little importance. After the improvement of the general health, there could, at all events, be no objection to the application of a stimulant embrocation or plaster to the tumour, with a view to the excitement of the absorbents of the part to a more vigorous action.

OF THE IRRITABLE TUMOUR OF THE BREAST.—This painful affection of the mamma has been first described in the work already so often alluded to of Sir Astley Cooper. The IRRITABLE TUMOUR is composed of a structure unlike that of the breast itself, although that organ is liable to become irritable without any distinct or perceptible swelling. "Both states of the disease, in the greatest number of examples, occur in young persons between the ages of sixteen and thirty years. I have never witnessed it prior to the commencement of puberty; but I have sometimes known it to occur at a later period of life than the age I have mentioned. When the complaint affects the glandular structure of the breast, there is scarcely any perceptible swelling; but one or

more of its lobes become exquisitely tender to the touch ; and if it be handled, the pain sometimes continues for several hours. The uneasy sensation is not confined to the breast alone ; but it extends to the axilla, to the inner side of the elbow, and to the fingers. It also affects that side of the body, even to the hip. The patients cannot sleep on the affected side ; and the pain is sometimes so severe as to prevent their obtaining any rest when lying upon it : even the weight of the breast, in the ordinary position of lying in bed, is in some instances attended by intolerable pain. Patients also state that heat and cold frequently succeed each other in the breast. And it seems that the pain resembles that of *tic douloureux*, darting like electricity through the part and through the neighbouring nerves. When the pain is most severe, the stomach sympathizes, and vomiting is produced. The patient's suffering is greatly increased immediately before menstruation, is somewhat relieved during that period, and diminishes after its cessation. There is no external mark of inflammation, as the skin remains undiscoloured. In some cases only a small portion of one breast is affected ; in others the whole, and not unfrequently both of the breasts. This painful state remains for months, and even for years, with little intermission ; but it has no malignant tendency ; and an operation, where there is no distinct tumour, must be entirely out of contemplation."

The **DIAGNOSIS** of this disease is unattended with difficulty ; for the pain by which it is accompanied, its tenderness on the slightest touch or upon pressure of any kind, the suffering which succeeds examination, distinguish it very sufficiently from the hydatid, the chronic mammary tumour, and the scirrhus and fungous tubercle. If, indeed, it be liable to be confounded with either of these, it could only be confounded with the chronic mammary tumour, a variety of enlargement of the breast which sometimes becomes very irritable and sensitive under changes of the constitution. Moreover, this disease is met with in persons of a nervous temperament, in whom there is excessive irritability of the system, without an adequate measure of constitutional strength.

The treatment of this disease consists in lessening the irritability of the system, in lulling the local suffering, and restoring the menstrual function to due health and regularity. The best local remedy is to be found in the application of a plaster of

equal parts of soap cerate and extract of belladonna, or a poultice with a solution of belladonna and bread. Oiled silk, or hare-skin or some other fur, worn upon the breast, aids in soothing and tranquillising the part, by the perspiration which it promotes. When the pain is excessively severe, leeches may also be applied : but if too frequently used, they produce debility, and add to the irritability of the system. As constitutional remedies, the sub-muriate of mercury, with opium and conium, should be given for a time, with an occasional aperient ; and then the medicine which I have prescribed with most advantage in lessening the irritability of the part, is a pill made with two grains each of the extracts of conium and of poppy, and half a grain each of the extract of stramonium and of the extractum *è semenibus*. This pill may be given twice or three times during the day : but half a grain of stramonium is sometimes too strong a dose, when half that quantity will suffice. To restore the uterine strength, the carbonate of iron, or ammoniated iron, or the compound mixture of iron, may, with any of the anti-irritants just named, be advantageously exhibited in combination with aloes. A hip-bath of sea water, or an artificial salt-water bath, may also be used, of a temperature ranging between a hundred and a hundred and five degrees. No operation is really required or admissible for this affection of the breast.

The only remaining disease of the female mamma which is admitted into Sir Astley Cooper's list of non-malignant affections of that organ, is what he calls ECCHYMOSIS OF THE BREAST. Its symptoms are the following : " It occurs in girls who are in most instances under twenty-two years of age. It is preceded by severe pain in the breast and arm. The extravasation of blood begins a few days before menstruation, and it appears principally in one large spot, as if a severe blow had been inflicted. Smaller and less vivid spots may also be observed in other parts of the breast. It is sometimes a concomitant of an unusually large bosom. The part is exquisitely tender to the touch ; and the pain with which it is accompanied passes down along the inner side of the arm to the ends of the fingers. In some cases it disappears in a week after menstruation ; but in others it is more severe, and then it may continue until the next period of that function. It looks like the ecchymosis which often succeeds to the application of leeches ; or like the extravasation of blood under the skin, which occurs in the arm after bleeding, when the



opening in the skin has been smaller than that in the vein. Its occurrence is a striking indication of the strong sympathy which subsists between the uterus and the breasts; for it is evidently the effect of the great determination of blood to the bosom immediately before the period of menstruation; and it shows an excessive irritability of the constitution as well as the great delicacy and debility of the blood-vessels, which are unable to support this sudden determination which the sympathy in question produces.

This complaint is entirely unattended with danger. Inasmuch, however, as it is accompanied by a diminished, irregular, and sometimes by a profuse uterine secretion, as well as by considerable debility and irritability of the constitution, two objects must be kept in view in its treatment; viz., first to increase the quantity and to promote the regularity of the menstrual discharge; and, secondly, to increase the strength of the system by the infusion of roses, and the sulphate of quinine, etc." Sir Astley Cooper's *Illustrations*, p. 85.

OF MALIGNANT DISEASES OF THE MAMMÆ. Of the diseases incident to the female breast entitled to be thus designated, if we be supposed to admit of a plurality of such maladies, the most important, no doubt, is carcinoma. The earliest form of this disease in the bosom is that of a small hard tumour, differing perceptibly in texture from, and moveable within, the natural tissue of the organ. The actual scirrhus may be observed to consist of two different substances; the one hard and fibrous, and the other softer and apparently inorganic. The fibrous substance constitutes the greater part of the mass, and forms irregular partitions, within which is contained the softer and less organized constituent of the tumour. The most accurate description of scirrhus, which the author has yet met with, is given by Mr. Wardrop in his general observations preliminary to his edition of the works of Dr. Baillie, p. xxxvi. "The soft or inorganic part of scirrhus," observes that ingenious and experienced surgeon, "is sometimes semi-transparent, of a bluish colour, and resembles in consistence softened glue or horn. In other cases it is more opaque, softer, somewhat oleaginous, and like cream in colour and consistence. The proportion and mode of distribution of these two substances are very different in scirrhus tumours of the same, as well as of different organs, and give great variety of appearance, which may be observed in examining

a number of tumours of this kind in different textures. In some scirrhus tumours the fibrous part is most conspicuous, and is condensed into a very solid mass, having the appearance of a nucleus, from which septa come off in various directions, and giving to a section of the tumour a radiated appearance. This is perhaps the most usual appearance of the disease. In some, the tumour is very irregularly shaped, and is nearly throughout a uniformly hard mass, in which scarcely any defined structure can be traced. In some, the fibrous part has a cellular appearance, the cells being filled with a soft pultaceous matter which can readily be pressed out. In others, cysts are formed in the tumour of various dimensions, which generally contain a bloody, or dark chocolate-coloured fluid. These cavities are lined by a smooth membrane, AND THEY HAVE SOMETIMES A FUNGUS TUMOUR growing from their surface. It occasionally happens, too, that parts of scirrhus tumours have a great degree of hardness; being converted into a substance resembling cartilage, in which also bony or calcareous depositions are sometimes found. When scirrhus tumours are found in the substance of a gland, their limits cannot in general be accurately determined; the two structures apparently being inseparably connected. In some instances, a scirrhus tumour condenses the cellular membrane which is in its immediate vicinity, by which it causes it to assume a somewhat sacculated appearance.

Scirrhus tumours pass from the state now described to that of suppuration. The softer substance is transformed into a thin ichorous matter having no resemblance to pus. The disorganization generally begins at the centre of the morbid mass, and extends towards that part of it which is nearest to the surface of the body, or to some of the natural openings. It is in this ulcerated stage of a scirrhus tumour that the disease is denominated cancer. When ulceration has taken place, the tumour does not generally increase in bulk, but is destroyed by a process of ulceration: and as the disease extends, and the ulcerative process goes on, new parts become involved, either through the direct channel of absorption, or by some mode of constitutional contamination; and the disease ultimately proves fatal by the extent of parts which it destroys, and the universal irritation which such a process creates throughout the system."

Carcinoma of the breast is ordinarily a disease of advanced life; it being scarcely ever met with in persons under thirty

years of age, and very rarely before the age of forty. Independently of accidental injuries, it most frequently declares itself about the period of cessation of the menses.

In the incipient stage of the disease it has been attended in some few cases by a slight discharge of blood from the mouths of the lactiferous tubes, which open upon the surface of the nipple: and coincidently with this circumstance it often happens that upon attempting to raise the arm, some amount of pain is felt at or near the insertion of the great pectoral muscle. Johnson's *Practical Essay on Cancer*, p. 13.

In a certain proportion of cases, the painful stage is preceded by a hard small indolent tumour for many years. The author recollects the case of a lady who sustained an accidental pressure of no great amount upon the more fleshy part of one of her breasts in consequence of a sudden movement of a child in the arms, THE CHILD in fact which she was then suckling. A hard moveable tumour no larger than a nutmeg was the only immediate result. The indurated part, however, remained, but continued perfectly indolent; and it did not increase nor diminish in size for upwards of twelve years. It then became painful, and advanced rapidly into suppuration and ulceration; and in about fourteen months from the commencement of the painful stage destroyed its subject.

The development of the painful stage is accompanied by a sense of heat and by throbbing. At first the increase of temperature is so inconsiderable as only to be felt by the patient herself; but as the disease advances it becomes so intense as to create a heated atmosphere to some distance from the affected organ. The peculiar character of the pain of cancer of the breast is that of darting or lancinating, which indeed are the epithets generally employed by patients to describe it. The scirrhus tumour has usually its first locality at some depth in the substance of the organ. The tendency of its growth is in the direction of the nipple towards the surface. In its progress in that course, it encounters the lactiferous tubes, and the surrounding cellular tissues and integuments, which it implicates in such a manner as to produce the characteristic retraction of the nipple, and puckering of the skin in its vicinity, which constitute one of the most decided pathognomonic symptoms of the disease. At this period of the malady, the skin becomes extensively and inseparably united to the subjacent tumour; and shortly after-



wards it may be observed to have acquired a slight tinge of redness. The other characters of inflammation present themselves about the same time, sometimes more or less mildly and consecutively, but generally with considerable intensity. After this, the whole surface of the swelling exhibits a purplish shining appearance; which it will retain with little change till ulceration is ready to supervene. From the great exacerbation of the symptoms which usually takes place about that time, the constitution becomes more manifestly implicated in the disease. At length, after sustaining much painful tension from the pressure of the tumour and rapidly increasing determination of blood to the part, the integuments give way to ulceration, and the patient experiences temporary relief from the escape of a small quantity of ichorous or sanious matter, the first produce of the ulcerative process. For a longer or shorter period, the ulceration chiefly advances by extension superficially. After the lapse of two or three months, in many cases at an earlier period, the carcinomatous ulcer assumes its proper characters, and penetrates deeply towards the more central parts, while at its circumference the edges become hard, elevated, and everted. The surrounding skin puts on a livid aspect, and from the surface of the sore there is a considerable discharge of an irritating quality. In some few cases the first produce of the ulceration partly consists of laudable pus, and partly of the characteristic sanies of cancerous ulcers. The odour of the discharge impresses the organ of smell with a peculiar but indescribable sensation. In extensive ulcerations, parts of the ulcerated surfaces may be observed to separate and fall off by a sloughing process, while new and luxuriant granulations are at the same time observed to be produced in other parts. "These changes upon the surface of the sore sometimes appear to alternate with each other; and in their further progression give rise to such hæmorrhages from erosion of blood-vessels as ultimately prove fatal to life."

But cancer of the breast does not always terminate in the same manner: for it has been known to prove fatal, not only independently of any loss of blood, which indeed is the more frequent event, but also without ever arriving at the stage of open or ulcerated cancer. In certain cases, which however are not frequent, the disease is propagated by juxta-position of parts, until it reaches either the cartilages or the periosteum of the ribs; and from these it is in like manner propagated to the

substance of the lungs. In other cases it would seem to be conveyed by lymphatic vessels directly communicating with the ulcerated breast.

The glands in the axilla become enlarged at different periods of the disease; in some cases so early as the commencement of adhesions between the tumour and the subjacent parts; but in others the enlargement of the axillary glands does not present itself until the breast shall have been for some time ulcerated; whilst, in a few rare cases, the glands in question have not swelled at all, although the disease has been propagated to those situated immediately above the clavicle, and in other respects has advanced until it has destroyed the patient.

Sometimes cancer in the breast has been attended by a swelling in the arm, from the effects of the disease on the glands of the axilla. Home's *Observations on Cancer*, p. 59. A case of this description is given by Sir Everard Home, in which the swelling of the arm subsequently to the operation was supposed to occasion the patient's death. "A woman, aged forty, had a cancer in the breast, which extended to the glands in the axilla; but, as far as was to be discovered by external examination, the diseased glands were within reach, so as to admit of their being extirpated. This case occurred in the year 1775, when surgeons were more sanguine in favour of the operation for this disease, and ventured to perform it in cases which now would be considered much too far advanced to admit of it. Mr. Hunter performed the operation, and found a greater number of glands diseased than had been expected. He was, however, able to remove all that had undergone any alteration in their texture, which included the whole axillary cluster. To come at them, he dissected round the axillary artery, which was laid bare for an inch in length. A few days after the operation the arm began to swell, and increased in size every day, until it became so large as to be attended with violent pain, from the great tension of the skin; and it remained in that state till the patient died, which was about three months from the time of the operation. The disease was found to have extended itself to the ribs, and to the muscles of the chest." A case of cancer of the breast is quoted by Sir Everard Home, in which the contamination of the skin produced small tumours over a great part of the body, p. 66. That, together with additional cases bearing on the point, are given in the 4th edition of this work, p. 805.

OF THE DIAGNOSIS OF CANCER OF THE BREAST.—We have already seen that this important organ is subject to a considerable variety of diseases, competent to affect its form and volume, and even the soundness of its tissue, independently of cancer. Sir Astley Cooper has most materially contributed towards the illustration of the diagnosis of cancer by his luminous and graphic descriptions of not less than NINE OTHER DISEASES, every one of which it is probable may often have been mistaken for that malady. Hence we must recognise, in the absence of the ordinary characteristic symptoms of other diseases so admirably analysed and described by Sir Astley, one most important element of the diagnosis of cancer. The more positive facts, which taken together might indicate the presence of the disease, are, 1st, the sudden or unperceived formation of a small hard tumour loosely situated within the glandular substance of the breast; 2nd, the comparative indolence of such tumour for an indefinite period, the affected organ in the mean time sustaining no manifest change in its appearance; 3rd, the eventually gradual development of the painful stage of the malady; 4th, the age of the party being that which is considered to mark the second great crisis in the physical history of woman; 5th, her constitutional state in respect to the function of menstruation; 6th, the coincidence of the disease in the breast with inordinate irritation of the uterine system; 7th, the scirrhus of the breast having been preceded by dysmenorrhea or other irregularities of the catamenial function; 8th, the peculiar character of the pain of a truly scirrhus or cancerous tumour, which in the uniform language of all descriptions of it has been distinguished by the epithets, shooting, pricking, stinging, lancinating, piercing, with an edged or pointed instrument, etc.; 9th, the almost stony hardness of the scirrhus mass after it has arrived at an advanced period of the second or painful stage; 10th, the smooth and shining appearance of the greater part of the surface of the tumour a short time before the rupture of the integuments; 11th, the retraction of the nipple towards the interior of the organ, and the puckering of the integuments immediately surrounding it; 12th, the contraction of adhesions between the glandular tissue of the breast and the subjacent parts, in consequence of which its entire mass becomes permanently fixed to a limited locality; 13th, the ichorous produce of the ulcerative process and the



characteristic foetor of that sanies, which is unlike the odour of any other substance in nature; 14th, the enlargement of the axillary glands, subsequently to the establishment of the ulcerative stage of the disease, and, in some cases, before that process becomes manifest externally: 15th, the eventual extension of the ulcer deeply into the substance of the scirrhus tumour; the frightful excavation, with the hard, elevated, and everted edges: 16th, the anxious countenance and the peculiar complexion of the patient: in short, the livid, dingy hue, which characterises the presence of advanced cancer in both sexes, and in any part of the body.

OF THE PROGNOSIS.—When the diagnosis shall have been established, and it is correctly ascertained that carcinoma is the actual disease, THE PROGNOSIS IS EXCEEDINGLY EASY, inasmuch as, with certain rare exceptions, applicable almost exclusively to the first stage of the disease, it is UNFAVOURABLE; amounting to an almost absolute certainty of an ultimately fatal event. But the infrequency of the exceptions here alluded to is a matter which has been strongly disputed by a certain class of sanguine and self-complacent writers; and by persons who might not have taken adequate pains, or possibly not possessed sufficient knowledge or experience, to form for themselves a correct diagnosis. The discordance of professional opinions on this subject is indeed so great as to require explanation. Mr. Nooth, at p. 37 of his *Observations on the Treatment of Scirrhus Tumours of the Breast*, expresses himself as follows: “My own experience, which has been extensive during thirty years’ practice, justifies me in saying, that a small fraction only, NOT MORE THAN ONE IN THIRTY PATIENTS, ever had any return of the disease, in any shape whatever, after they had submitted to the operation.” Is it at all probable that all the thirty cases here alluded to could have been cases of actual scirrhus? The author thinks not.

The impression left on perusal of Mr. Fearon’s tract on Cancer is such as to lead to the belief that HIS PRACTICE ALSO, in cases of the same malady, was attended with extraordinary success. It seems to have been the principal object of that gentleman’s publication to recommend his own peculiar mode of operating, to which he principally attributed the success of his method of treatment. That method of operating is now in general adoption: but it may be interesting to the reader to be made acquainted

with the simple incident which originally suggested it. "In the year 1778, Dr. John Sims, a very skilful physician, advised a patient under his care to have the operation for trichiasis, or inversion of the under eyelash, performed. She consented, and applied to me for that purpose. The flaccidity and redundancy of the skin of the under eyelid were so great that I was obliged to cut away a very large portion of it, in order sufficiently to retract the under cilia, and effectually to turn the hairs outward; so that they might not in future irritate the eye. Having removed a sufficient quantity, near an inch in the middle or broadest part, I was very careful to bring the opposite edges evenly and perfectly into contact, and to retain them in that situation by strips of adhesive plaster and a proper bandage. As I had taken very great pains in applying the dressings, and the patient continued perfectly easy, I did not attempt to remove them for three days. On their removal, I was exceedingly pleased to find, that a perfect union of the edges, from one end to the other, had taken place, agreeably to my intention and wishes. There was a small serous discharge, but nothing like pus or digested matter; and the secondary union was completed in a few days." Mr. Fearon soon after extended the principle of bringing the edges of incised wounds into close contact to operations for cancer.

Mr. Hill, of Dumfries, in his *Cases in Surgery*, chap. i. p. 3, states that, of the first forty-five patients on whom he operated, only one case proved unsuccessful. In three more cases, the cancer broke out again in different places; and a fifth was threatened with some tumours at a distance from the original cancer. All the rest continued sound as long as the patients lived, or, at least, up to the date of Mr. Hill's publication in 1772. Of the subsequent thirty-three patients on whom he operated, one lived only four months; and, in five more, the cancers broke out afresh, after having been once healed. It appears therefore, that not more than one in seven relapsed. Here also we cannot but conclude that many of Mr. Hill's cases proved successful because they were performed mistakenly on non-carcinomatous subjects.

Sir Everard Home, in his *Observations on Cancer*, has published twenty-two cases of cancer of the breast. Of this number, eight were allowed to run their course unmolested. Of the remaining fourteen that were operated upon, only five proved

completely successful. There were, indeed, two more, of which the event was unknown.

But what shall we say of the extraordinary want of success in Dr. Monro's practice, as published by him in his *Histories of Collections of Bloody Lymph in Cancerous Breasts*? It was stated by that celebrated professor, *Edinburgh Medical Essays*, vol. v. art. 32, that, "out of nearly sixty cases of cancer, at the extirpation of which he had been present, only four patients remained free from the disease for two years; and of these more fortunate subjects, three had occult cancers in the breasts, and the fourth had an ulcerated cancer of the lip." It is very probable that Dr. Monro's connexion with the University of Edinburgh, and the high reputation which he enjoyed as a practical surgeon, might induce families and members of the profession to apply to him in the last resort, which at least would go some way to account for his remarkable want of success in the treatment of cancer. Added to this, we have the testimony of Mr. Johnson, that he possessed a well-written manuscript of Dr. Monro's surgical lectures, from which he had collected that, in his opinion, the professor had recommended the operation too **INDISCRIMINATELY**, and without prescribing the necessary limitations. Johnson's *Practical Essay*, etc., p. 100. Moreover, the reader will please to observe that, in Dr. Monro's time, the wound, instead of being united, by the first intention, was allowed to heal, if it would heal at all, by the tedious process of granulation.

When the operation proves only partially successful, competent only to arrest the progress, but not to cure the disease, its return or reappearance is usually indicated by the discovery of a new induration in another part, or of a disposition to ulcerate, and to furnish an oozing discharge at or in the immediate neighbourhood of the cicatrix left after the operation. In such a case a dangerous relapse may be certainly calculated upon.

It is moreover a general opinion, and generally a correct one, that the axillary glands being found indurated some time subsequently to extirpation, should be considered as an indication of great danger of relapse: cases, however, are recorded of positive exception to this rule.

Certain cutaneous affections, presenting themselves shortly after the extirpation of a scirrhus breast, are often to be considered as no dubious harbingers of a relapse. "I observed at



first that I did not see Mrs. M. for some time before the day of the operation. Upon talking with her immediately on my arrival at her house, I found the remains of an eruption on her skin, which she attributed to a former surfeit; but about which I could not help expressing my fears to the gentlemen in attendance with me, that it had arisen from an unfortunate absorption, which of itself might possibly counteract our success, inasmuch as I had in several instances seen an erysipelas about the bosom with general efflorescence mark that circumstance, and prove a certain forerunner of impending mischief and danger. This remark I submit to future attention, as an object highly worthy of notice; for although the glands in the neighbourhood of a cancerous tumour are often found affected, without any symptom whatever to denote the time when the absorption had taken place; yet I have never seen the circumstance above-mentioned, without an almost immediate change for the worse in every respect." R. B. Cheston, Gloucester, in a letter to Mr. Fearon. See Fearon's Treatise, case xix. p. 126.

The prognosis in cancer might obviously have reference to the mildness, intensity, and stage of the malady, and the contrary. On these facts, and also perhaps on that of its having been a disease of frequent appearance in the patient's family, must depend not only the final issue of the case, but also the probable duration of the patient's remaining life antecedently to that event.

OF THE TREATMENT OF CANCER OF THE BREAST.—With respect to the general treatment of cancer of any part of the body, the subject has been already discussed in our article Cancer of the Uterus. What furnishes an inducement for offering a few additional observations on the treatment of cancer of the breast more especially, is the greater accessibleness of that organ to surgical remedies, as well as to an early examination, and a comparatively early discovery of its maladies. Local predisponent causes may often be removed, or greatly diminished in their influence, by the use of leeches, cooling lotions, and other topical applications of a sedative nature. The ability to ascertain pretty accurately the nature and amount of development of disease in the breast would naturally suggest to a competent practitioner the best known means for subduing it, or mitigating its severity by constitutional remedies.

But the greatest advantage of its position is the ample opportunity which it affords for judging soundly and dispassionately on the expediency in any case of having recourse to the aid of surgery.

In deliberating on the question of amputation, it was formerly an important item of the inquiry whether a part or the whole of the organ, or in other words, whether the whole of the disease or the whole of the breast, should be disposed of in this way. The most eminent surgeons of the present day are pretty well agreed, it is presumed, in their preference of the latter method.

OF THE DIFFERENT MODES OF OPERATING FOR THE REMOVAL OF PARTS OR OF THE WHOLE OF SCIRRHOUS BREASTS.—The advantages attending the operation by the knife are such as to give it a decided preference in all cancerous diseases. It is the only mode which is capable in the more advanced state of the disease of removing the contaminated parts to a great extent; and in doing it, the surgeon is enabled to take away with great precision every part he thinks contaminated by the disease. When the operation is over, he can examine the diseased part with all desirable accuracy, and see whether it is everywhere surrounded by healthy parts; and if not, by referring to its natural situation, he can remove any part which may give him any cause to suppose that it is contaminated. The skin after such an operation is in a loose state, and admits of its edges being brought together; so that the wound may always be much diminished in size; and in very many instances the cut edges may be brought together like those of a simple incision. The operation is only of a few minutes' duration; and the moment it is over, the parts are in a state to commence the process which is necessary for their recovery; and in the course of two or three weeks they are entirely healed, even where the disease has not been completely removed. In former times, when the knowledge of cancer was more imperfect than it is at present, an idea was entertained of its growth being similar to that of a vegetable; and it was therefore thought that, unless it was taken out by the roots, the disease was not completely removed. It was found that very active caustics were capable of deadening the whole tumour, which is always more or less of an irregular form; and when the diseased part was thus brought away, the

projecting portions being considered as the roots of the cancer ; and the proof of its being completely eradicated was, that the sore readily admitted of being healed. Any recurrence of the disease from the contaminated parts not having been destroyed, was supposed to arise from the constitution having been in a diseased state, and not from any failure of the action of the caustic : and in this way the original idea of its being a constitutional disease was most probably formed. The fact is, that diseased parts have less powers of supporting themselves than healthy ones, and therefore are more readily destroyed ; so that a powerful caustic acts to twice the extent on a diseased part in proportion to what it does in the natural state ; and an indolent tumour can have every part of it deadened with impunity by means which would produce a violent inflammation upon the common skin.

“ It was therefore by no means an unfair conclusion,” observes Sir Everard Home, “ till it was contradicted by experience, that such applications as were capable of deadening every part which was in a diseased state, without acting upon the surrounding healthy parts, were to be preferred to the operation by the knife ; and it is not beyond the memory of surgeons now living that such an opinion was general in London. Since that period two facts have been ascertained, which prove that when the tumour has become cancerous, such caustic applications are incapable of removing the disease entirely ; the one, that when the poison is once formed, the contamination proceeds, and extends beyond the diseased alteration of structure ; the other, that everything which irritates the diseased part increases its action and its power of contamination : and, in fact, all regular practitioners have laid aside the arsenical applications to cancerous tumours in the breast, in consequence of finding that the disease was rarely removed by them. The caustic applications which have been usually employed for the destruction of cancerous tumours are, arsenic, corrosive sublimate, and the actual cautery. As these are also used for the purpose of removing other tumours, whose structure prevents the knife from being employed, I have had frequent opportunities of making observations on their comparative effects. The only preparation of arsenic which I have used, is equal parts of the white arsenic and sulphur. This acts as a powerful caustic, and appears capable of destroying any tumour which has not acquired the dispo-



sition to throw out a fungus. The sloughs formed by each application are found to be much in proportion to the quantity of the powder applied. By this method I have removed a large tumour in the cheek, which appeared to be assuming the state immediately previous to its becoming a cancer.

“Corrosive sublimate appears to act both locally and constitutionally, and therefore so far similarly to arsenic. Its local effects are, however, less powerful; parts being destroyed by it to a less extent: and the constitutional effects from absorption are more like those common to the different preparations of mercury than to those of arsenic.

“The actual cautery is at present almost entirely disused in surgery, excepting in cases of diseased bones; where it is employed to produce death in the part, and in that way to put an end to the disease. It is a much milder application than either of the above caustics, gives less pain while acting locally, and produces no constitutional disturbance; and when it is necessary to keep at bay a fungous excrescence the growth of which may not be very luxuriant, I should prefer it to the others; from a belief that it does not, in the same degree, hurry on the diseased action of the tumour. This account of the effects of caustic applications is here given, to show in what they differ in their effects from those of the operation by the knife, and when compared with it, what their disadvantages are; although, in other tumours of a less malignant nature, they may be employed with success.” Home’s Observations on Cancer, p. 178.

OF FUNGUS HÆMATODES OF THE BREAST.—The author is not sure that he has ever seen a case of true fungus hæmatodes, or CEREBRIFORM cancer of the breast. In this respect his experience pretty nearly coincides with that of Mr. Wardrop. “In the description,” observes Mr. Wardrop, “which Mr. Hey has given of fungus hæmatodes, three cases are mentioned where the female breast is said to have been affected by it. In none of these cases, however, nor in two others which I carefully dissected, and which appeared to be very analogous to those mentioned by Mr. Hey, was there that MEDULLARY structure in any part of the tumour, which has been found to be a constant appearance in fungus hæmatodes, in all the other organs where it has been met with: I should therefore be led to doubt of the nature of the disease in the cases alluded to, had not fungous tumours arisen from the cicatrix; whilst being aware, at the same time, that a very considerable

difference may arise in the appearance of this disease in different organs; the natural structure of the mamma being as unlike that of the sound eye-ball or liver, as the same disease in these organs." Observations on Fungus Hæmatodes, by James Wardrop, p. 171. Edinburgh, 1809.

The author does not think it necessary to offer any remark on the subject of the treatment of the disease described by Mr. Hey as cases of fungus hæmatodes of the female breast. The more general facts of that malady have been already noticed under the malignant diseases of the uterus.

END OF THE FIRST DEPARTMENT OF THE WORK.

# OF PREGNANCY AND ITS CONSEQUENCES:

INCLUDING THE  
DISEASES OF THE PUERPERAL STATE.

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THE unimpregnated uterus has already been sufficiently described. We have now to consider the important changes which that organ undergoes in consequence of impregnation. In our first edition, this part of our subject was introduced by an examination of the various doctrines or theories which have at different periods been held on the subject of animal reproduction; but as the question belongs, in reality, rather to physiology than practical midwifery, and as such is fully discussed in most works on that subject, it will be more consistent with the plan of the present work to refer to the 4th edition for information on that point, and to proceed in this to a consideration of the more obvious changes which the uterus undergoes in consequence of impregnation,—in which condition it is usually described as the GRAVID UTERUS.

Before impregnation can take place several things are necessary. Thus in the male, one or both of the testes should be in a healthy state, secreting semen. In the female in the same manner, it is necessary that the ovaries, at least one of them, shall be healthy and physically competent for their functional offices.

Besides the existence and actual soundness of one or both ovaries, there must be an increased determination of blood to them. In the human female this is periodical, in brutes it is only occasional. In both cases the subjects are more susceptible of impregnation at that period than at any other time.



Applying this remark to the human female, we might be warranted in the general statement, that a woman should menstruate before impregnation can take place. But sometimes we hear of women being impregnated without ever having previously menstruated. This however does not prove in such cases the absence of an increased determination of blood to the uterus; although it does prove that there could not be a superfluous quantity of it to eliminate, in the usual form of a catamenial discharge. The œstrum in brutes is limited to a particular season. In the human subject the susceptibility to impregnation is confined to no season.

Again, before impregnation can take place, there must be an intercourse between the sexes, although in some brutes it can scarcely be said to amount to a coitus. In fish for example, at a certain season, the female, directed by her instinct, seeks the shallows of her element, and trailing along the gravel, deposits her ova. The male, directed also by a kindred impulse, seeks the same place and sheds his semen over the ova just spawned by the female, by which they become impregnated. See Whitaker's *History of Craven*, p. 179. Something analogous to this takes place in newts. Spallanzani observed two of these efts swimming round a pond in parallel lines. After some time they both stopped, and remained still for a little while. They then placed themselves at right angles with one another, having their heads together. Soon after this their tails approached each other, so that they formed an acute angle; at which time the water had an opacity given to it; which was attributed by Spallanzani to a deposit of female ova, and of male semen. The same function is liable to striking peculiarities in the frog, in birds, in some multiparous animals, as in the canine species, in the pig, and in many others.

The effect of the coitus on the male subject is a discharge of semen. Very different opinions are however entertained as to its ultimate destination. Harvey, who tried many experiments on animals with a view to the elucidation of these subjects, asserts, that he never found the fluid of the male in the uterus of the female. Haller found it in the uterus of a sheep in one case, and that was forty minutes after the coitus. De Graaff never once found it in the uterus. It has been believed by some that the semen masculinum is absolutely conveyed into the Fallopian tubes;

and those who are of this opinion quote Ruysch for their authority. He mentions the case of a woman who was taken in adultery by her husband, who instantly put her to death. Ruysch had the opportunity of examining the body, and found, as he supposed, semen masculinum, both in the uterus and in the Fallopian tube. Other physiologists have greatly doubted the correctness of this report, inasmuch as Ruysch was much advanced in age at the date of the observation referred to; whilst moreover it is added, that his pupils and assistants, who were present, acknowledged that they were not able to see what he professed to describe.

On account of the difficulty of detecting the male semen in a palpable form in the Fallopian tubes, some physicians have refined the matter a little, and have supposed that it might not be absolutely necessary that the grosser semen itself should go into the tubes; but that it might be sufficient if something, exhaled from it, should pass into them. To this supposed exhalation they gave the name of *AURA SEMINALIS*. It is well known that in the case of the frog, the semen masculinum is actually applied to the ova out of the female body. It is therefore to be presumed, that the same thing must happen when the ovaries and their vesiculæ Graaffianæ are included within the body. It is however to the ovaries that we have to determine our attention for the first proofs of impregnation in the human female. There can be no doubt of impregnation, when we are able to discover an ovum presenting a particular appearance upon the surface, and visibly projecting from the plane, of the ovarium. The vesicles of De Graaff are indeed not ova, but the spaces or chambers where the ova are formed. We must therefore inquire, what changes are sustained in these prominences in consequence of the admission of the male to the female?

One of them, a plurality in multiparous animals, becomes enlarged, projects upon the ovarian surface, and bursts. When it bursts, it discharges a something which is conveyed by the Fallopian tubes into the uterus. There is then left of course, on the wounded part of the ovary, a cavity technically called a *CALYX*, which however is filled up by degrees, and which of course gets progressively smaller, until it entirely closes. The seat of this affection of the ovarian tissue presents the natural hue of a cicatrix, of a deepish yellow hue, and is therefore called *CORPUS*

LUTEUM. When therefore we find one of these cicatrices, we consider that impregnation has taken place, whether we find a foetus or not. The corpus luteum continues for some time, a twelvemonth or more, very evident. Another good reason for considering one of these appearances an evidence of impregnation is, the fact of their number answering to the number of ova actually furnished by them. We have said IN GENERAL, because there would appear to be some exceptions to the inference. If a woman shall have had one child, there will be one corpus luteum ; if twins, there will be two ; if triplets, there will be three, &c. The same thing takes place in multiparous animals. Those who pretend that this is but imperfect evidence, take advantage of the few exceptions. It has been said, that a corpus luteum has been found without a foetus. Such may have been the fact, and should be considered a consequence of a miscarriage. If the party miscarrying should die soon after, one of the ovaries will present the appearance of a corpus luteum ; and the uterus will possibly be found in a state of enlargement. But if the patient should live some time after this, and then die, in that case also the corpus luteum would be found ; but no foetus, nor any accessional proof of impregnation, would be discovered. Again, sometimes there have been twins with only one corpus luteum. This is explained by the rudiments of both ova being contained within the same vesicle. Sometimes there are two corpora lutea, and only one ovum. To this also there is a ready explanation. The woman may have miscarried of her second ovum. In this case we should of course expect two corpora lutea, but only one foetus. There can therefore be no doubt that the presence of a corpus luteum is a proof that impregnation has taken place.

From the best attention which the author has been able to give to the subject, it appears to him certain that this effect is produced by the agency of the male semen, transmitted by an adequate power along the vagina and other genital tissues, in a manner analogous to a stream of electric fluid, so as to be ultimately conveyed to the ovaries. Any further explanation of such an agency must be quite as difficult to give, as it would seem difficult to comprehend the notion of a peculiar sympathy between different links of the chain of tissues interested in the intercourse between the sexes, as maintained by the late Dr.



Haighton. It is a maxim in philosophy, that matter cannot act where it is not. A specific action, we know, does take place in the substance of the ovary, of which the effect has never been seen without an influence having been imparted to it by the male agent. It is therefore a strictly logical inference, that the influencing cause must have been present to produce it.

No sooner do the changes in one of the ovaries as formerly described take place, than the whole of the uterine system is thrown into a state of activity and excitement. An increased determination of blood towards the womb and its appendages has been ascertained to exist almost contemporaneously with the application of its exciting cause. The internal surface of the body of the uterus becomes suffused by a specific secretion, which in the sequel is to become an important agent in the formation of a connecting medium between the mother and the foetus. A change also takes place about the neck of the womb. The mucous glands there situated, and throughout the passage through the cervix, increase in size, an abundant quantity of strongly adhesive mucus is secreted, to furnish a guard against the escape of the ovum. Other actions, moreover, are speedily set up in the constitution, in the stomach, in the breast, in the cellular tissue, &c., all in sympathy, no doubt, with the state of the uterine system.

The primary effect of impregnation is to form an ovum. The appearance of an ovum, when first seen in the uterus, is that of a cloud of exquisitely delicate tissue. It would seem to be transparent and gelatinous; but upon exposing it to the contact of spirit of wine, or of diluted vegetable acid, it is immediately observed to present the character of something like organization. At a more advanced stage of development, it is ascertained to consist of two delicate membranes, the one within the other. Of these, the external is called the chorion, from its being everywhere covered with a coating of fine vascular tissue, projecting at right angles from every point of its surface, giving it the appearance of a bundle of fine wool or hair: and hence its name of chorion.

Within the chorion there is another membrane, still more delicate in its texture, called the amnion. The amnion is naturally perfectly transparent, and has no projecting flocculency from its external surface like the chorion. Within the interior mem-

brane is to be found a minute worm-like body, which is already in the course of being evolved into a foetus. In this stage of its development it presents the appearance of a whitish thread or a small maggot coiled up; and cannot be distinguished from a brute embryo, excepting that the latter is somewhat longer in proportion to its thickness. The next visible stage of the progress is the budding of the extremities; and next to that, the pullulating of the fingers and toes. The head may be distinguished from the rest of the body by an intermediate narrowness between it and the trunk. As it advances in its development, it comes to have something of a determinate shape. After being completely formed, it continues to increase in size till the end of the ninth month. Every part having then arrived at a state of completeness and perfection sufficient to enable the whole to exist by its own power, nature expels it. When thus arrived at its full uterine growth, it presents a very different appearance from what it had exhibited at first, and is become possessed of attributes of which in its earlier embryo state it gave not the smallest indication of ever arriving at.

The entire ovum consists of several parts, viz. membranes, placenta, umbilical cord, the foetus itself, and liquor amnii. The foetus is connected by the navel-string to the placenta, into the substance of which it enters, and usually at some little distance from its centre, but OCCASIONALLY NEAR ITS CIRCUMFERENCE. The author has more than once seen it terminate in several radiating branches on the membranes, at the distance of several inches from the placenta. The length of the umbilical cord differs in different cases. Its usual length at the full period of gestation is about two feet. It has been sometimes seen of the length of four feet and upwards. In other cases it has been short of six inches in length. There are inconveniences attaching to each of these extremes. When too long, it is apt to slip down before the foetus, upon the rupture of the membranes. In this way it may come in the way of being pressed between the child's head and the parietes of the pelvis. This may cause an obstruction in its circulation, and thus have the effect of destroying the child. When very short, if the child be drawn to a distance from the mother, it may cause inversion of the uterus. In that case, the placenta should be left low in the vagina, until it can be separated from the inverted surface of the uterus, and the

latter carefully reduced. When a child is being propelled into the world, we cannot be very positive whether the cord might prove long or short: therefore it should always be considered proper practice, to keep its navel as near as possible to the external parts of the mother.

The umbilical cord in the human subject consists of three blood-vessels; viz. two arteries and one vein. The arteries are smaller in size, in comparison with the veins. These vessels are connected together by a particular kind of cellular substance, which usually contains more or less of a gelatinous viscid fluid. Dr. Hunter seems not to have believed that there was any cellular membrane in the cord; but it may be easily shown by inflation. Sometimes there is only one artery and one vein. In this case the artery is much larger than usual. When there are two, which is the usual complement, they communicate together very freely, especially when they begin to ramify into subordinate branches in the placenta.

In brutes there are more of these vessels; viz. two arteries and two veins, besides some others. In them, the navel-string is also shorter than in the human subject, and its vessels almost always run in a straight direction. The veins, if more than one, generally unite when they enter into the abdomen of the foetus. In brutes there is a vessel which forms a communication between the bladder and the allantois. This vessel transmits urine, and is called urachus. But brutes have another vessel, or rather, two more vessels; for there is one artery and one vein. The artery passes from the mesentery through the navel, to go to some parts which will be indicated hereafter. The veins run parallel with the artery. Sometimes however the vein passes in spires over the arteries, which are less spiral. Sometimes there are little coils, as if the vessels were drawn up and formed into twists. This must of course lengthen the passage for the blood. We occasionally find a knot on the string, which in all probability is formed at the time of labour. It may however happen at any other time in cases where there might be an excessive quantity of liquor amnii. Most frequently however this knotting takes place during labour; and it is very easy to conceive how it may happen. Let the cord be supposed to be lying in a coil round the orifice or neck of the womb; the head of the child having to pass in that



direction, will find its way through it, and must necessarily draw it into a knot; the end of the string being fast at both extremities. The knot however does no mischief, as the gelatinous substance in the cellular membrane prevents the effect of pressure upon it. The liquor amnii, in some degree, may also, by buoying up the fœtus, promote the same effect.

Neither absorbents nor nerves have been distinctly seen in the umbilical cord. Nerves have been sought for to explain the appearances on the child called *nævi materni*, by those who believe that impressions made on the mother are capable of producing effects of this kind on parts of her offspring. But it is clear that there is no communication of the kind between the mother and child.

The placenta is supposed to perform two principal functions. 1st. It is the medium for conveying nourishment to the fœtus in utero; and 2nd, it is the medium for the vitalization of its blood.

The placenta is a flat, roundish, or oblong substance, like a cake; and thence its designation. The foetal membranes, together with this body, have sometimes been called *secundines*. The placenta is a very important organ in the business of uterogestation; but it is not given to all animals. Those which are oviparous have no placenta, including birds, and those animals that have the actions of birds. One instance of this structure is the bat.

The rule which nature observes in the number of placenta, apportioned to the human subject is that of having furnished one placenta for each fœtus. But there are some exceptions; for when the rudiments of two foetal subjects are inclosed within one and the same vesicle of De Graaff, there will be but one placental mass; although each will be supplied with separate vessels and a distinct circulation. But when there are two or three, or even four children, each child, if proceeding from a distinct vesicle, will have a distinct placenta. In cases where there are a plurality of placenta, the vessels are all distinct, and have no communication with each other, at least not generally. In some cases, however, they do communicate very freely. This communication is effected by anastomosis. When the child is born, the navel-string is tied; and in general it is tied in two places. Of these ligatures, the first of course is intended to secure the child against bleeding to death. It is not always

known what the other ligature is for, and indeed some practitioners only apply one. The second is however intended to prevent the SECOND child, in case of an anastomosis of its placental vessels with those of the first, from bleeding to death. There is a great variety in the forms of the placenta of different animals.

We have seen that in the human subject the after-birth is flat and round, or oblong. In the guinea-pig it is round, but not flat. In some animals it is annular, surrounding the foetus like a bracelet; as in the canine and feline species.

In ruminating animals there are a number of placenta of a comparatively small size.

The thickness of the placenta in the human subject is about an inch or an inch and a half at its thickest parts; but towards its circumference it is thinner, forming a kind of raised and rounded boundary. It is said that in some animals this uterine organ is so thin, that they have been said to have no placenta at all. This is especially the case in the mare and in the sow.

The placenta does not always adhere to the same part of the uterus: in general it connects itself to the superior part of the womb, and it is well that such is the ordinary locality of its attachment; inasmuch as there is great danger arising from its being attached to the neck and orifice of that organ; of which abundant proof will be submitted to the reader hereafter.

When we examine the placenta after its removal from the uterus, we can readily trace its different parts. It has two surfaces, an external and an internal. Its external surface is that which may be observed to have been in attachment to the uterus. This surface is convex, rough, and irregular, with the appearance of fissures or breaks in it. Some persons have thought, that on account of this disposition of its tissue, it might possess a degree of power of accommodation to different circumstances; so that upon a sudden exercise of the body it might be able to suit itself to the motions of the uterus without being detached. The internal surface is concave and smooth, being lined by the foetal membranes, which, when reflected, form the external covering of the umbilical cord. It is at this surface the vessels of the cord enter the placenta, where their radiated distribution may be observed with great distinctness. The veins are external to the arteries.

The next inquiry which we have to make concerning this body regards its structure. On this subject there have been several

opinions. Haller describes it as being fibrous, spongy, and parenchymatous, loaded with blood. If we macerate it in water, and separate it part from part with a probe, it will indeed appear to resolve itself into something like fibres. But these are vessels, as may be easily seen by throwing injection into them by the navel-string. From the obvious connexion with the navel-string which one portion of the placenta is thus proved to have, this portion of it is called the foetal part of the placenta. But the structure and characters of the placenta are subject to considerable varieties in different animals. In some, the foetal part only of the placenta comes away at parturition. In the human subject both parts come away. It is not unnatural to inquire the reason for the retention of the maternal part of the placenta of the cow, for example, and of other ruminating animals. In these animals, after impregnation, nature forms a number of processes from the internal surface of the womb. These act as the maternal part of the placenta; but being part of the substance of the uterus, they cannot come away at parturition. After a time, however, they become gradually less and less projecting, until at last there is no trace of them left. On the surface of these projections there are a number of foramina, and these are connected with the foetal part of the placenta by bundles of foetal vessels being admitted into the cells of the cotyledons.

In some animals, as in the cat, both parts of the placenta come away, and each part may be easily distinguished from the other. The maternal part, after a successful injection of it, assumes a granular appearance, because of its being composed of cells, and of the injection being arrested in those cells, for want of a direct communication between them and the foetal vessels. The maternal cells in these subjects are very minute; of which, indeed, their granular appearance is of course a necessary consequence. If again we inject from the foetus, as for instance from that of the cow, no connexion will appear between the maternal and foetal portions. We have precisely the same result in the human subject; only in the latter case, the maternal and the foetal portions are intermixed in a different and more complicated manner. After a successful injection of the maternal part, it assumes the appearance of a uniform mass of injected substance. But upon afterwards examining it very minutely, we may discover intermediate portions of a fibrous or vascular structure not at all coloured with the injecting material. If we have for our object



to inject both portions of the placenta, we must then introduce our injection both by the foetal vessels of the umbilical cord, and by the uterine arteries of the mother.

It hence follows, if the facts now propounded be correctly stated, which the author verily believes they are, that during the connexion subsisting between the mother and the child, throughout the whole period of uterine gestation, THERE MUST BE TWO DISTINCT CIRCULATIONS. Of these, one is very simple, the other is more complicated, especially if it be traced through the body of the foetus, which it supplies with blood.

The circulation between the uterus and the maternal part of the placenta is very simple. It is the same as in every other part of the body, excepting that here there are cells between the extremities of the arteries and the beginnings of the veins. In tracing the distribution of blood through the foetal circulation, there are circumstances which are remarkable, and they require our best attention. There is, first, a striking peculiarity about the foetal heart; there being a passage of communication between its two auricles through the foramen ovale, and another communication between the aorta and pulmonary artery, which is called the ductus arteriosus.

These facts being premised, the reader will be able perhaps more readily to follow up a description of the foetal circulation. We have had occasion to speak of the umbilical cord, as consisting of two arteries and one vein, included within a membranous covering. These vessels are called umbilical, from their originating and terminating at the navel. On reaching the placenta, they ramify minutely from its centre towards its circumference, enter deeply into its substance, and form nearly the whole of the foetal portion of that body. They there terminate in corresponding veins, which unite to form the umbilical vein. This goes up the navel-string, of which it forms a part, into the abdomen; and then proceeds in the direction of the liver to the vena portæ, where it divides into two. One branch, called the ductus venosus, goes direct into the vena cava. The other goes forward into the vena portæ, circulates its blood through the liver, whence it is returned by the hepatic veins into the vena cava; one in a direct course, the other more circuitously. From the inferior cava, the blood goes into the right auricle of the heart. Part of this goes through the foramen ovale to the left auricle. The rest, which is the larger portion, goes into

the right ventricle, to be forwarded into the pulmonary artery. A portion of the blood so received by the pulmonary artery goes to be distributed through the lungs; but the principal part of it goes through the ductus arteriosus into the aorta, which conveys it through all parts of the body, and also by its umbilical branches, to the placenta. Hence it would appear that there are here two circulations going on; viz. one between the mother and the maternal part of the placental circulation, and the other between the foetus and its portion of the placenta.

But we have said nothing of a communication between the mother and the foetus; for unquestionably there must be a communication of this kind, although some persons, because they have not detected it, have ventured to assert that it does not exist, and that the foetal circulation can be of no use to the foetus in the way of nourishment; the foetus, according to their notions, having to derive its nourishment from the liquor amnii. It should, however, be remembered, that the liquor amnii is merely an aqueous fluid, having minute quantities of several salts in solution in it, but containing no coagulable lymph, and therefore not competent to afford any nourishment to the foetus. But suppose it were of a nutritive quality, how is it to be conveyed into the mouth of the foetus? Sometimes the foetus has no mouth, at other times we meet examples of acephalous monstrosities, without any aperture whatever by which nutriment could find its way into the stomach; and even some of these abortive productions have been seen without a stomach, and but few inches of intestine; with the other chylopoietic viscera, the kidneys, liver, spleen, or pancreas, very imperfectly formed; sometimes without a chest, and consequently without either heart or lungs: and yet such specimens of monstrosity have possessed the faculty of growth as completely as perfectly formed children.

That there must be a communication of some kind or other subsisting between the circulations of the mother and child during the uterine life of the latter, there cannot therefore be a doubt. Who ever doubts the existence of a communication between the absorbents and the cellular membrane? The lymphatics are supposed by many to arise by open mouths from the intestines; but we cannot, by injecting the valvulae conniventes, convey injection into these absorbents; and such may be the case with the absorbent ramules of the venous portion of the foetal circulation in the placenta. Of these ramules some, it

would seem probable, take their origin from the extremities of the arteries; whilst others, with still more probability, begin with open orifices from the cells of the maternal part of the placenta. They absorb something from these cells which in the placentulæ of the cow is visibly like chyle, and which they must be supposed to convey to the rest of the blood; but what this something is has not yet been determined. Some are of opinion that it may be a peculiar modification of coagulable lymph. Then comes the question of how the red particles are formed. The answer must be, that the foetus must form them itself; and this hypothesis is not difficult to comprehend. In oviparous animals the egg has no red blood before incubation; and during the period of incubation all that the mother does for the egg is to impart heat to it, and that can be done artificially as effectually as by the animal itself. Here, then, the ovum, which is all that proceeds from the mother, only furnishes parts so specially endowed, as gradually, in the course of their development, to become possessed of a sanguinifying power, and therefore to become competent to manufacture red particles. The cotyledons of the cow are visibly glandular, and their cells contain from about half an ounce to an ounce of a white fluid like chyle. The veins of the foetal part of the placenta absorb this into the mass of foetal blood, and by the sanguinifying power, incident to the vital actions of the organs of the calf, it is made into red blood. Hence the inference, that the communication required is effected by means of absorbent veins on the part of the foetus, and of cellular cavities charged with the subject matter of nutriment on the part of the mother.

But the placenta produces an effect on the blood which bears an analogy to that produced by the organs of respiration in the adult. It is not, however, here intended to be asserted that there is the same action performed in the placenta in this respect as in the lungs. The action of the latter may be considered as necessary to support animal heat, or at least to contribute to promote that effect; the medium we are in being of a lower temperature than that of our bodies, and therefore having a constant tendency to cool us; whereas the temperature of the foetus and its medium are the same, therefore this part of the process is not required. The foetus, however, does require a placental circulation as a means of vitalising its blood, or of such constant renewal of its chemical properties as we know to



be produced in the adult by respiration. This fact is perfectly well known ; for let the umbilical cord sustain, during a difficult labour, sufficient pressure to interrupt the circulation in it but for a few minutes, and the child will inevitably be still-born. This cannot be for want of nourishment, for children when born vigorous and healthy require nothing to be given them for several hours.

Having described the structure and the economy of the placenta, the order of the subject leads us to consider the membranous bag which contains it, together with the foetus and the liquor amnii. This investiture is composed of several membranes, lying one within the other. The rule of nature in this respect is to allot to each foetus a distinct bag. When the mouth of the womb dilates during labour, the bag protrudes, and either breaks of itself, or is ruptured by the practitioner. In either case the child makes its way through the ruptured membranes ; and if there be another child, it will be usually found contained within another bag of membranes, which will be found protruding after the first shall have been removed. But there are exceptions to the rule of each foetus having a distinct bag ; and, indeed, this exception occurs so often, that some persons have had repeated opportunities of meeting with cases in which both foetal subjects were contained in the same bag. Some, indeed, have asserted that they had met with this disposition of things more frequently than the contrary. It is obviously an advantage for each foetus to have a distinct bag ; for if both be within the same bag, and that by any accident should be ruptured prematurely, both children would be destroyed.

The comparative anatomy of the foetal membranes is a subject upon which we have scarcely any time to bestow. With respect to those which are proper to the female of our own species, they differ greatly in their characters at different periods of pregnancy. As they are most perfect and most developed at advanced periods of gestation, we shall begin our inquiry concerning them as they appear during the latter months. Let us then suppose that we have a gravid uterus far advanced. We inject it, and remove a square portion of its walling. By this we expose a peculiar tissue incorrectly denominated a membrane, called the spongy chorion or decidua. This is somewhat rough and irregular, although not harsh to the feel ; but really having more the appearance of sponge than of anything else.

If we again make an incision through this, corresponding with the section already made in the uterus, we bring into view another layer of structure of a more obviously membraneous character, very thin and delicate, and beautifully transparent. This is the proper or true chorion. The reason of this name, more appropriate to it at an early period of gestation, has been already stated. Within the true chorion is the amnion, also a diaphanous membrane, including the child and the fluid which receives its name from it and gives a floating buoyant support to the foetus during its uterine gestation.

Such is the relation of the membranes to each other. But as the placenta forms a part of the ovum, we should also distinctly know its situation relatively to the membranes. It is situated immediately behind, or exteriorly to the true chorion. Where it comes to the edge of the placenta, the spongy chorion appears to be distributed into two laminae, of which one passes between the chorion, that is, the true chorion, and the placenta, and the other between the placenta and the uterus. The chorion, where it passes over the placenta, is connected with the internal layer of the decidua, and gives it, by means of that connexion, a minutely foraminated appearance, presenting a resemblance to a webbing of Brussels lace. Its irregularity sometimes puts on a granular appearance. It is very vascular, and receives its vessels from the uterus. It is the only membrane, if indeed it were correct so to consider it, which does receive its vessels from the uterus. Hence by some it has been called the maternal membrane; but another reason for that designation given to it is the fact that it is originally secreted and fabricated by that organ itself. Its foraminated appearance results from the membranes being separated from the uterus. The vessels remaining with the uterus, these apertures in the decidua become a necessary consequence. Although this is the thickest membrane, at the same time it is the weakest. It is easily torn, and has therefore been sometimes called *tunica lacerabilis*.

As it is the external membrane of the ovum, it has no doubt a principal share in forming the connexion between the mother and the foetus. It was Dr. Hunter's opinion, that the discharge of any part of it during pregnancy was a sure sign of miscarriage. The author in like manner has never met with an instance of this kind when any part of the decidua came away of which the event did not fully

confirm the statement of Dr. Hunter. But it requires the use of some caution not to mistake other membranous substances for portions of the decidua; for such substances are sometimes morbidly formed by the uterus in cases of dysmenorrhea.

The chorion is a strictly membranous body, and therefore, although much thinner, is very much tougher and stronger than the decidua.

The amnion is the most attenuated membrane of all; but nevertheless capable of sustaining a greater weight, or offering more resistance, than both the others put together.

These, then, are the three membranes which we find investing the fœtus during gestation.

But there are some membranes in brutes which are not to be met with in the human subject, as the allantoïs, which is of a peculiar shape. It contains a fluid possessing urinous properties; and we can trace a communication between it and the bladder by means of a canal or vessel which is called urachus. At the last month of gestation in a cow, this is so large as to contain a gallon of fluid; and during the earlier months its size is in proportion to the rest of the ovum. It is extremely thin, like gold-beaters' skin, and is situated between the chorion and the amnion.

It has been a matter of inquiry whether something of this kind cannot be traced in the human subject. If it could be supposed to be very minute, it might possibly have been overlooked; but when we consider the size of it in brutes, and presuming that it should bear a similar proportion to the ovum in the human subject, it must have been easily seen had any such thing existed. Some good anatomists, as Albinus and Dr. William Hunter, have indeed positively asserted that they had seen an allantoïs in the human subject. We must give them credit for having seen something; but unless it had been seen to communicate with the bladder, it might as well have been called anything else as an allantoïs.

In cases of miscarriage in the human subject, there is indeed often found a small vesicular body, containing a white fluid, attached to the navel-string. Sometimes it is suspended by a filament from the amnion; and a question may be raised as to the identity or analogy of this vesicle in the human subject with the allantoïs of the brute. In some cases the filament just mentioned has been traced through the navel-string to the mesentery; but for that very reason it furnishes no direct



analogy to the allantöis. There is, however, another membrane in the brute to which this would seem to bear some analogy. It is the *tunica quarta* of some authors. It is very vascular; and from its red vessels it has indeed been called *tunica erythröides*. It is situated between the foetus and the amnion. Its vessels come from the mesentery through the navel. Of these there are two, namely, one artery and one vein; and are called omphalo-mesenteric vessels. Now the filament by which the vesicle already mentioned is suspended from the amnion in the human subject, is found to consist of these two vessels: and therefore there is some analogy between this vesicle and the erythroidea; but none between it and the allantöis.

To understand easily some matters that are to follow, it may be necessary to add a few remarks on some of the peculiarities of the membranes as they present themselves to us at an early period of pregnancy: we will suppose any time between the second and third months. On having a gravid uterus of this period to examine, we remove a small section of its parietes, as in the former case. The incision having been made through the walling of the uterus, we should encounter a peculiar kind of tissue of a softish spongy consistence, approaching as much to a fleshy as to a membranous substance. This we should find to be a part of the decidua. But this tunic would be found to contain something. On making an opening through it, we should find another membrane, which, upon being examined, would prove to be a reflection of the former one, in the same sense as that portion of the pericardium which goes close over the heart is a reflection of the loose pericardium. Therefore that part of the spongy chorion which we find immediately lining the uterus, is the decidua vera or decidua uteri; and what we see after cutting through this, is the decidua reflexa. After cutting through both layers of the decidua, we arrive at the true chorion, and within it the amnion. Thus at an early period of pregnancy we make out four membranes; the decidua being of course divided into two; as then it would appear to consist very distinctly of two layers.

It will perhaps appear convenient hereafter, that the reader should have been made acquainted with the following description of the decidua by Dr. William Hunter:—"In a few weeks' growth, the membrana decidua is more distinct for examination than in the more advanced periods of pregnancy, and is different

in several circumstances. It is a very soft, tender, and pulpy membrane, which lines the whole cavity of the upper part of the uterus, reaching to the beginning of the cervix, and passing a little way within the origin of the Fallopian tubes, at which places it is perforated by small openings. In a case of very early conception, probably not more than two weeks, which was examined by Mr. Hunter, the decidua was found, upon opening the uterus, as fine at the beginning of the cervix as the retina, but without any hole in it there. This perhaps always takes place in a very early conception, where the ovum remains undisturbed in the uterus: but where it passes off in a miscarriage, the decidua at the cervix is perforated. In more advanced pregnancy, that part of the decidua which lines the inner surface of the uterus seems to lose itself at the beginning of the cervix, and has evidently there an opening. The decidua which covers the external surface of the chorion becomes gradually thinner as pregnancy advances, but has no opening in it at the cervix uteri, nor anywhere else. The decidua is very irregular in its thickness; some parts being thicker than a crown-piece, and others of extreme thinness: but this is subject to a good deal of variety in different persons. In the more advanced periods of gestation, there is, however, less variety in the thickness of the different parts of the decidua; but it is then altogether a thinner and much more uniform membrane.

“ Besides that portion of the decidua,” observes the learned editor of Dr. W. Hunter’s Essay on the gravid uterus, “ lining the cavity of the fundus uteri, and which Dr. Hunter, by way of distinction, used to call the decidua vera, another portion forms an external covering to that part of the chorion which is not in contact with the inner surface of the placenta. THIS WAS DISCOVERED BY DR. HUNTER, who called it the decidua reflexa. It is a membrane of considerable thickness, and is sometimes of a yellower colour than the decidua vera. The ovum lies between a part of the decidua vera and the decidua reflexa, both of which unite into one membrane at the edge of the placenta: or, in other words, the decidua vera divides itself at the edge of the placenta into two laminæ, one of which passes between the placenta and the inner surface of the uterus, and the other forms the decidua reflexa, which covers the outer surface of the chorion. The decidua enveloping the ovum does not, however, merely cover the shaggy vessels of the



chorion at their outward floating extremities, but also the whole of their external surface, even to the depth of the chorion itself. The chorion commonly appears transparent, and not covered by any layer of decidua immediately applied to it.

Where the decidua reflexa is beginning to pass over the chorion, there is at an early period of pregnancy an angle formed between it and the decidua which lines the uterus; and here the decidua is often extremely thin, and perforated with small openings, so as to look like a piece of lace. In proportion as pregnancy advances, the decidua reflexa becomes gradually thinner and thinner, so that at the fourth month it forms an extremely fine layer, covering the chorion. It comes at the same time more closely in contact with the decidua which lines that part of the uterus to which the placenta is not fixed, till at length they adhere together. One might naturally be led to suppose that this part of the decidua, after its junction with the decidua reflexa, should become a thicker membrane than it was originally. This, however, is so far from being the case, that it is really thinner. The decidua reflexa, being very thin before it is joined to it, can produce little additional thickness, and the decidua which lines the uterus, is gradually made thinner by the progress of pregnancy by distention.

How the decidua envelops the ovum has never yet been observed, and therefore can only be a subject of conjecture. The most probable supposition is, that the ovum passes from the ovarium into the cavity of the uterus, while the coagulable lymph is pouring out by the arteries of the uterus, which is afterwards changed into decidua. One could hardly imagine that the ovum should make its way into the middle of a membrane which is already formed, and though tender, yet capable of some degree of resistance. In two examinations, however, which I have known to have been made with care at a very early period of pregnancy, where the decidua was already formed, no ovum could be discovered. But this circumstance I consider as invalidating very little the probability of the supposition which has just been made; because it is natural to think that at a very early stage of pregnancy the ovum is so small as to be detected with great difficulty. Although it is extremely probable that the decidua begins to be formed at the same time that the ovum is passing into the cavity of the uterus, yet it is not absolutely necessary for the formation of the decidua that the ovum should previously have arrived at that cavity. When



an ovum grows in the ovarium, or the Fallopian tube, the decidua is formed in the uterus, and the uterus is considerably enlarged, so as to undergo to a certain degree changes exactly similar to those which take place in natural pregnancy.

We have already spoken of the structure and economy of the placenta, and we have here only to offer a few additional remarks on the subject of its formation. In the first month of pregnancy there is no placenta : nature, however, accomplishes the process of nutrition by means precisely similar in their effect and operation, although presenting a different external appearance. In the first and second month the chorion is very plentifully supplied with processes of a flocculent tissue, which are proved to be vessels having the power of taking up fluids, and of conveying them to the interior of the ovum for its nourishment. When pregnancy has further advanced, this vascular flocculency gradually disappears from the general surface of the chorion, and accumulates on that part of it which is to become the locality of the placenta, corresponding to which the navel-string is inserted : and this is nature's mode of beginning to form the foetal part of the placenta. The maternal part is formed from the tunica decidua, which in time is wrought into that cellular substance which appears afterwards. The reader will thus perceive that the author still adheres to the doctrine which assumes something of a cellular character for the maternal part of the placenta, as propounded by the late Dr. William Hunter. A systematic work can scarcely be considered a proper vehicle for the discussion even of PLAUSIBLE assumptions of errors, both as to matters of fact and induction ; errors perhaps rather presumed, than sufficiently proved to have been committed by that eminent physiologist.

The membranes contain a watery fluid, which does not materially differ from the fluids which are ordinarily effused into the other serous cavities of the body. It contains, however, very little coagulable lymph, and therefore does not coagulate upon the application of heat. It contains small quantities of salts, like other effused animal fluids ; but water is its principal constituent.

It has been advanced as an opinion, that liquor amnii is formed by the foetus. This notion, however, cannot be true ; for at an early period of gestation it exceeds the foetus in weight in the proportion of fifty to one. The quantity of it at the full period

of gestation differs very materially in different cases, varying between two ounces and two pounds. Dropsy of the amnion will be noticed hereafter as a disease of the ovum, and in such cases it may amount to many gallons. Its average quantity is between half a pound and a pound. The quantity of liquor amnii therefore increases absolutely and not relatively from the commencement to the latter period of gestation.

This fluid is employed as an auxiliary power in the mechanism of parturition. When acted upon by the contractions of the uterus during labour, it occasions a protrusion of the membranes in the form of a bag; so that it is made use of by nature as a wedge to dilate the mouth of the womb. This bag is very tense when the womb contracts; and afterwards becomes flaccid upon the contraction ceasing, and tense again during the next pain. When the orifice of the uterus is sufficiently dilated, this membranous bag is ruptured; or if not, it may be proper for the practitioner to rupture it. During the process of dilatation of the vagina, the head of the child acts also as a wedge to effect the same object; but it cannot readily pass until the membranes shall have been ruptured.

The liquor amnii is especially useful, at the earlier periods of gestation, in giving security to the foetus against the effects of pressure from any untoward action of the uterus, or of any violent approaches of other bodies. We may illustrate this point by supposing a fragile substance suspended in a bladder of water. We might push it and toss it about as much as we pleased, as long as it continued floating in the fluid; but let the water out, and we should see that such usage would soon destroy it. If we suppose then such an issue to be a certain result of such an experiment, it would follow, that were the bag of membranes to be ruptured at an early period of gestation, the foetus ought in like manner to be destroyed, and bear such marks upon it as would indicate the manner in which it had been destroyed. This accordingly we find to be the case. If the bag of membranes is broken in the third or fourth month of gestation, the foetus will often be found to have been pressed quite flat.

As the pregnancy advances, the foetus increases in strength, and does not require so much of this defence. Nature is thus careful to provide the most suitable means to answer her ends; for when the gestation is not much advanced, the water bears a very great proportion to the bulk of the foetus: but between the

third and the fourth month the bulk of each is about equal. After that period the bulk of the foetus gradually increases over that of the water, till the end of the ninth month. At the full period, the foetus will be observed on an average to bear to the liquor amnii the proportion of about nine or ten to one; for at this period it is not so essentially useful as it had been during the early months; and is reserved, in a much reduced quantity, to act as a mechanical agent to assist in the time of labour. When rupture of the bag takes place, its contents may perhaps be in some degree useful in lubricating the parts.

OF THE CHANGES SUSTAINED BY THE UTERUS ITSELF IN CONSEQUENCE OF IMPREGNATION.—These are, indeed, very remarkable; and affect its shape, size, and some other of its properties. With regard to its size, we observed, when speaking of the unimpregnated uterus, that it was about three inches in length, two in breadth, at the broadest part, and about one in thickness, including both its anterior and posterior parietes; that its shape was that of a wine flask inverted, and slightly flattened; and that by making a section into its interior, in the direction of its long axis, we might ascertain its internal cavity to be of a very moderate size and triangular in its form. After impregnation, something passes into this cavity from the Fallopian tubes. To make room for the reception of what is destined to be thus transmitted into it, a mutual recession of the opposite surfaces takes place, so as to enlarge the cavity and to render the external appearance more convex. After this, it undergoes another change: the sides become roundish. As it enlarges, it must of course increase in weight; and women about this time are often heard to complain of a sense of weight and of a bearing down in the vagina: so that the vagina is said to be shortened. But this effect is owing to the vaginal portion of the womb projecting further into it, so as to produce a degree of prolapsion, or rather of descent of that organ. About the third month this bearing down is often so great as to cause considerable inconvenience. But as the womb increases in size, it gradually rises towards the brim of the pelvis, and this sense of bearing down is removed.

During the progress of utero-gestation the womb is gradually distended: but this distention is unequal, as it affects different portions of it. During the first five months the distention or development is confined to the body; and the neck does not alter: a fact however which does not exactly accord with the descrip-



tion of Dr. Smellie on the same subject. After this time the NECK begins to be developed. As the body enlarges, it acquires a roundish form. From the fifth month the neck gradually shortens, the upper part of it being imperceptibly added to the cavity of the body; and it goes on shortening till the end of the ninth month, when it forms together with the body one capacious oviform cavity, sufficiently ample to contain the ovum at the ultimate fulness of its growth. As the neck of the womb does not begin to stretch till the fifth month, it follows that the whole of its distention is accomplished during the four last months of gestation. We might naturally suppose that a quarter of it yielded in each of the four months: but this development does not appear to be in a direct proportion to the time occupied by it. At the sixth month inclusive, it is shortened a little: at the seventh, somewhat more than one-half of it is developed and added to the cavity of the body: so that it shortens somewhat more between the fifth and seventh than between the seventh and ninth months. During the eighth month the distention goes on, so as to leave undeveloped little more than the mere orifice of the womb at the commencement of the ninth month of gestation. This order of dilatation is obviously wisely adapted to its object: for if the neck dilated as soon as the body, there would be left but little check on abortion.

But another fact to be taken into the account is an actual difference of character of the body from that of the neck. In the first months the several tissues of the body relax and give way, and continue to do so to an advanced period of the fifth month; when those of the upper part of the neck begin to yield and give way; and are followed, in a consecutive order of development, by those of the lower tracts of the neck. But still those forming the lowest boundary of the cervix, viz., those more immediately bordering on the orifice of the womb, remain more or less rigid till the full period of gestation is completed. But on the accession of labour these also become relaxed, and sometimes suddenly; even in the course of a few hours. At this period of consummation of the pregnancy, however, those of the body no longer relax; but assume the very contrary condition, namely, that of resistance and contraction. This contracting state of the womb, together with that of other muscles co-operating with it, occasion the pain of labour.

It sometimes happens, that the uterus does not stretch in this

natural order : for every now and then we hear of its bursting. The accident of rupture of the womb has however taken place in the greater number of cases in consequence of mismanagement of the labour, and at other times from actual violence used by the practitioner. Such cases will of course present themselves for consideration under a future head of subject. It is intended here simply to notice the fact of spontaneous rupture of the uterus, in consequence probably of an originally *UNEQUAL* development of different parts of the parietes of that organ. It is sometimes unusually thin, being occasionally very thin all over : but at other times it has been observed to be exceedingly thin only at particular parts.

The womb owes its development to the agency probably of no principle purely mechanical. There can be no question at least of its being in a great measure indebted for that attribute to an accession of new substance. In other words it grows. It follows however, from what has been already stated, that this growth is sometimes very unequal. It therefore becomes liable to the accident of spontaneous rupture.

Besides the change that takes place in the neck of the womb from gradual diminution of length, there is moreover a functional alteration which supervenes during pregnancy in the state of its muciparous glands. In the unimpregnated state of the organ, we can see some small follicles here pretty numerous interspersed, from which some mucus may be pressed. After impregnation, these glands enlarge and secrete much more mucus ; and the entire neck of the uterus becomes filled up with it. When pregnancy is more advanced, they are so large as to admit the end of a probe into their excretory ducts ; and, in fact, they go on enlarging till the end of the ninth month : and at the time of labour they are large enough to admit the end of a goose quill. There is an astonishing quantity of mucus secreted by these glands ; but on examining the apparatus furnished for the purpose it will be found quite equal to the effect. The discharge of this mucosity in abundant quantity is very desirable at the time of labour ; inasmuch as it is accompanied by a state of relaxation of all the parts concerned ; whereas the absence or a deficient quantity of it is usually considered a sign of rigidity.

As pregnancy advances, the uterus rises higher in the abdomen, and nature observes a pretty regular gradation in this respect. At the third month its fundus may be just felt above the brim of the pelvis. At the fifth month the fundus may be distinctly re-

cognised half-way between the brim and the navel. At the sixth month it is found a little below the navel. At the end of the seventh month it is often an inch and a half or two inches above the navel; and at the end of the eighth, it is half way between the navel and the *scrobiculus cordis*; and in persons of short stature, much more than half-way between the navel and the pit of the stomach: etc. etc.

This gradual ascent of the uterus in the abdominal cavity during pregnancy is productive of different effects in different cases. It must obviously have the effect of pushing other parts out of their proper places, and so produce some considerable encroachments. It must also have the effect of causing much inconvenient pressure upon some important blood-vessels, absorbents, and nerves. If a woman has a reducible hernia, it may indeed draw it out of the sac and reduce it; and such a result has often happened: but if irreducible, it might bring on symptoms of strangulation. The gravid uterus has, at other times, operated as a CAUSE of hernia; for as it rises in the abdomen, it increases in width, as well as length, and becomes of course increasingly a cause of distention and of attenuation of all the abdominal parietes. The author has often known hernia produced in this way in subjects who had previously no predisposition to it. Of herniæ produced in this way, that called the umbilical is the most frequent; whereas that also is the variety of rupture which is most frequently reduced by gestation. On finding themselves the subjects of what would seem spontaneous reduction, patients might think themselves cured, this however would prove to be a great mistake: for the cure would depend on an obliteration of the mouth of the sac, as must be evident to every person who understands the anatomy of the parts implicated; and an obliteration of this kind not being actually the case in the temporary reduction here supposed, the hernia protrusions return as soon as their subjects get up after their confinement.

On examining a gravid uterus at the latter months, we find its shape to be oviform, and not pyriform, which we have stated to be its figure in its unimpregnated state. We indeed observe great varieties in this respect, depending no doubt on corresponding varieties of causes. If for example there might happen to be only a small quantity of liquor amnii in the bag of membranes, some parts of the child forcing more than others would have the effect of causing the uterus to yield, and to be produced



more at one part than at another. Add to this the effect of different positions of the child, and of the relative positions of a plurality of children. In the latter case, it is very manifest that the form of the uterus will not a little depend upon the position and packing of the several children. If we suppose one to be situated above the other, the uterus would of course ascend very high; but in other respects it would approach to the form of a gravid uterus in common cases: but if placed side by side, the womb would present great breadth, and perhaps be found more or less depressed in the middle.

In our general examination of the gravid uterus, we have an opportunity afforded us of observing the course and other properties of its blood-vessels. The arteries will be easily distinguished by their serpentine course and convolutions. They are also smaller than the veins, which run comparatively straight. The arteries, it should be recollected, take the same convoluted course in the unimpregnated state of the uterus; and hence it is clear that nature designed them for the same purpose in both conditions of the organ; probably for retarding the velocity of the blood's motion: and hence we do not find this course taken by the veins; the velocity in them being naturally inconsiderable.

When we again view the uterus externally, we may easily see the absorbents. In the unimpregnated state of the organ these are not very distinct; but at the latter period of pregnancy they are indeed very large and numerous, both in the human subject and in other animals. These absorbents of course carry their contents to the thoracic duct.

Another property of the uterus during gestation to be remarked upon, is its absolute and comparative thickness. These are difficult points to determine. They can only be ascertained by injection, and by repeatedly examining the uterus under different circumstances, and also under similar circumstances in different subjects. Many are of opinion that the uterus is of the same thickness during gravidity as it is in its unimpregnated state. But the fact is, that it really is, in some cases, and especially in some parts, much thicker during gestation than it is in its unimpregnated condition; but again in other cases it has been seen much thinner; even indeed so thin as to admit of the limbs of the child being shadowed through its parietes. This latter fact is here stated on the averment of the late Doctor

John Sims, who declared to the author that he had himself once met with a remarkable instance of it.

If a woman were to die in the last month of her pregnancy without any flooding, and without any discharge of the liquor amnii, the uterus would probably be found as thick as when unimpregnated. But if she had died from flooding, the waters not having been discharged, the vessels in the mean time having been much depleted, or almost entirely emptied, the uterine parietes might be expected to appear much thinner. If again we suppose the waters to have escaped without any flooding, and the uterus to have firmly contracted after the birth of the child, the mother having been suddenly attacked and speedily carried off by a paroxysm of convulsion; in such a case we should doubtless find the uterus strongly contracted, and its parietes unusually thick. Such is usually the state of the uterus after a safe and prosperous delivery; and this in point of fact is in many cases the condition of it when women complain of a bearing down of the womb after delivery, and also of being annoyed with the presence of a hard substance occupying one side of the abdomen; which is nothing more than the uterus in a firmly contracted state. As women are apt to be a good deal frightened at this circumstance, and especially during their first confinement, it should be explained to them. After the lapse of a very few days, the tumour will entirely cease to be felt. Women under the same circumstances, and subject likewise perhaps to the inconvenience of having an unusually large pelvis, complain of a bearing down, accompanied by a painful state of the genital passage, to which they give the description of feeling as if they were coming to pieces, or as if their bowels were coming out. In these cases the patient should be instructed to keep in a horizontal posture; otherwise prolapsion and even procidentia of the womb might be the consequence.

When we examine the gravid uterus in respect to its constituent tissue, we find that it has fibres in different directions. This fibrousness of tissue, it is true, cannot be seen in the unimpregnated uterus. But now we can see, in some parts of the organ, that peculiarity of their character as distinctly as we can see the fibres of muscles in other parts of the body. The author is aware that some few persons, both in this country and abroad, seem to have made up their minds, that certain fibres which the majority of modern physiologists consider to be muscular, ARE

REALLY NOT muscles. Not to mention the name of any existing practitioner, it may be stated that the late Mr. Else was of this opinion. There was good reason, however, for taxing that gentleman with a little prejudice in the matter. A small portion of the uterus at an advanced period of pregnancy was taken to Mr. Else for his opinion of the precise nature of the tissue which was so submitted to him. After carefully examining it, he gave for answer, that his opinion decidedly was that it was muscular; but being detached from its natural locality, he could not say to what part of the body it belonged. But when he was told that it really was a piece of the uterus, he examined it again, and THEN said that it could not be muscle, for there were no muscular fibres in the uterus.

The course of the uterine muscular fibres EXTERNALLY is exceedingly irregular, and they are so endlessly intermixed in their distribution, as to make it impossible to pursue and unravel them. But internally their course is better defined. Some pass longitudinally over the fundus of the uterus to shorten it; others pass in circles around its body to reduce it in circumference; and it is probable by the spasmodic contraction of some of these latter fibres, that what has been called the hour-glass contraction is produced. There are, indeed, two points or places of the gravid uterus, upon exposure of the internal surface of its body and fundus, where large belts of concentric muscular fibres may be distinctly seen; viz. round the entrance into each Fallopian tube. They were first observed by Ruysch, and were by him called *musculi orbiculares uteri*; and others have since paid him the compliment of adding his name to that designation. In consequence of this distribution of its fibres, the uterus can act in all directions, but most powerfully in the direction in which it expels the foetus. This strong action is also employed by it to throw off the placenta, and to propel that substance out of its cavity. That accomplished, it immediately lessens the orifices of such of its vessels as had communicated between its internal surface and the placenta. If it were not for the exertion of this power, flooding would come on, and the patient would speedily lose her life. The contraction of the uterus is so great at this time, that the orifices of its vessels are scarcely to be seen. They look like so many threads hanging pendulous from the uterine surface. The uterine vessels themselves may also in some degree exert the same power of contraction, and



thus contribute as an auxiliary means towards the prevention of hemorrhage; so much blood only being allowed to escape as goes to furnish what women call the cleansings.

OF THE SIGNS AND INDICATIONS OF PREGNANCY.—We have already enumerated the principal structural changes consequent upon conception: but inasmuch as many of the changes in question cannot be made available in the living subject as proofs of the fact, it is necessary we should have recourse to other signs not liable to that objection. There are, indeed, several symptoms by which the fact of impregnation having taken place may be ascertained with considerable certainty.

Among the first of such symptoms, is THE SUSPENSION OF THE FUNCTION OF MENSTRUATION; which frequently engages the earliest attention of the party. But without reference to other circumstances, this SOLELY cannot be received as an evidence of pregnancy. It is indeed a fact not to be refuted, that genuine menstruation cannot coexist with pregnancy; the menstruating organ being then entirely and exclusively occupied with business appertaining to another function. In other words, it cannot then secrete menstrual fluid, because of its being already engaged in secreting the decidua, which becomes in the sequel a closely adherent lining to the whole of its cavity, and therefore must subsequently prove an impediment to menstruation until the gestation shall be completed. Amenorrhea, it should, however, be recollected, is so far an uncertain proof of pregnancy, as it is an accompaniment of many diseases and of functionally diseased states; as colds, habitual irregularities of the catamenial function, chlorosis, fevers, etc.; in short, of all causes whatever of disturbances of the general health.

Women, it is well known, are subject to considerable varieties in the character of this function. There are some whose constitutions are so very regular as to be able to predict the day of their anticipated change. If, therefore, a married woman of this description finds so regular a function suspended, she will very naturally suppose herself pregnant. On the other hand, some women are exceedingly irregular in their menstruation. In some females, two or three months, or even more—the author has indeed known a longer period than a twelvemonth—elapse, without any appearance of the menstrual discharge, and without any manifest injury to the health being sustained. When, again, women marry about or after forty, they become liable to sup-

pression or a dodging of the catamenia in the common course of things. In such cases we might be disposed to entertain some doubt as to the cause of the suppression.

It should be observed, moreover, that women sometimes incur inconsiderable losses of blood, which they are apt to look upon as menstrual, even during the first two or three months of pregnancy. These appearances are comparatively of brief duration, continuing for example only for a few hours, and are the consequence solely of rupture of a few straggling vessels scarcely connected with the decidual membrane of the ovum, but distributed upon the vaginal portion of the uterus, and upon the upper portions of the vagina itself, and unusually congested in consequence of the increased determination of blood to the uterine system. The intervals between these appearances are for the most part uncertain or irregular; and in the greater number of cases they only occur ONCE after conception. With respect to any manifestations of this kind which may take place after the first two or three months, they will be found to arise from a separation of a part of the decidua from the surface of the uterus, and are in general precursors of miscarriages.

2. OF SICKNESS AND VOMITING.—It is well known that the stomach sympathises strongly in many cases with the earlier developments of pregnancy. Few women, therefore, incipiently pregnant, escape becoming the subjects of the peculiar nausea and sickness incident to that period. It generally comes on immediately upon getting up in the morning, and as it would seem in consequence of changing the horizontal position for that of either sitting or standing. This symptom alone cannot be considered as decisive of the existence of pregnancy; as it may be produced by many other causes; for example, by disordered states of the stomach itself, as well as by inflammations and other morbid conditions of distant organs of the body. But if attended by suppressed catamenia, and in circumstances of liability to impregnation, a woman could scarcely attribute it to any cause so probable as to her being pregnant. This sickness continues in general for the first two or three months of gestation, and then gradually, but sometimes suddenly and unexpectedly, ceases.

3. OF LOSS AND DEPRAVATION OF THE APPETITE.—The sickness incident to the earlier weeks and months of gestation, is not unnaturally accompanied by a derangement of the power of

digestion, and by loss and depravation of appetite. Under these circumstances the stomach has sometimes sought relief from the effects of crudities thus generated in it, by unusual cravings for absorbents, strong condiments, unwholesome fruits, and various substances at other times generally inedible. This symptom is rather to be considered as an evidence of a deranged state of stomach, than an effect of a given condition of the uterus.

4. OF LOSS OF FLESH.—This symptom is not necessarily a consequence of a loss or perversion of the appetite, although frequently preceded by a dyspeptic state. It is an indication of considerable value, as an evidence of recent impregnation. Persons accustomed to attend to the changes observable in the external appearance of the countenance, in common with other parts, in consequence of impregnation, can predicate often with remarkable certainty the fact of the presumed cause, and even at a very early date subsequently to the commencement of its influence. The condition of the uterine system produced by conception, would seem to have the power of exciting the absorbent system to a prodigious activity. For it is not only the features of the countenance that are hollowed out and acuminated, so as to produce the peculiarity of expression just remarked upon; but all the external parts of the body are reduced in bulk and fleshiness. So constant and universally influential on all external parts of the body is this accessional activity of the lymphatic system, that French writers seldom fail to place in their list of the earliest signs of pregnancy, that of FLATNESS OF THE ABDOMEN. Taking however into consideration, that reduction of flesh is an accompaniment and a consequence of innumerable other changes in the state of the living body, it is obvious that this indication must be liable to much uncertainty.

5. OF ENLARGEMENT OF THE MAMMÆ.—In this development we can pretty obviously see the design of nature. It is accordingly an indication of pregnancy much more to be trusted, than some others which we find enumerated. But sometimes the breast enlarges from an increase of flesh, and not of the glandular part which enters into its composition. Therefore this indication should be preceded by some of the other symptoms, to make it of positive value as an evidence of gravidity. It is an undeniable fact that certain morbid affections of the uterus, foreign from and almost incompatible with pregnancy, have been occasionally,



accompanied by a secretion of milk-like fluid by the breasts. An imperfect secretion of milk may therefore be set up in these organs, and still pregnancy may not have been the exciting cause. There is indeed reason to believe that a secretion of milk may be artificially set up by suction without pregnancy; for it is well known that a bitch, by being sucked for some time, may be made to give milk, although she may not have had pups for months or years before. Some females of our own species have possessed the power of secreting milk for many years after they had ceased to bear children.

6. OF CHANGE OF COLOUR AND SIZE OF THE AREOLA ROUND THE NIPPLE.—There is always more or less of an areola in females of every age, and even in men: but it often becomes much darker during pregnancy than at other times. Some people therefore lay much stress upon it as an indication of pregnancy; and it may be the best single evidence which we possess. In some cases it may go a very great way to assist our diagnosis, inasmuch as in those cases especially, the accession of colour is peculiarly striking. In a small proportion of women it may afford little or no assistance; as in females of very fair complexion, in some of whom no perceptible change of colour takes place either during pregnancy or even during the puerperal state: whereas in other subjects, the areola has presented a deepish tinge in the absence of pregnancy, and even in persons who had not been pregnant at any former period. Again, in another class of women the areola never acquires any considerable colour till after their first confinement. It may be observed, that in general, during the first pregnancy, the areola acquires a duskyish red hue. Nursing has always the effect of keeping up the appearance of it; and if a woman becomes pregnant again before the child is weaned, it is likely to be rendered darker during that pregnancy than it was before. Its increment of colour during lactation is not however to be much trusted to as an evidence of a coexisting pregnancy.

7. OF QUICKENING AS A SIGN OF PREGNANCY.—The term quickening, as used to express a certain stage in the developments of gestation, has an obvious reference to an exploded doctrine once maintained in the schools, that the foetus in utero became first possessed of the living principle when the mother became first the subject of certain peculiar changes and sensations, which together constitute the phenomena of quickening. It is now well known

that the foetus in utero possesses some of the most important attributes of life from the earliest pulsations of the first speck of organisation called the *punctum saliens*. It is a doctrine of the church of Rome that the ovum, in the event of its premature expulsion, becomes a proper subject for the rite of baptism as early as the fortieth day after conception. But the phenomena of quickening have in fact little or nothing to do with the period of the child's vitality, or at least much less to do with that question than with its subsequent developments. Even to a very late period, quickening has been considered as the earliest cognisance on the part of the mother of the child's movements in utero. Dr. Denman, in his *Introduction to the Practice of Midwifery*, gives his opinion of it in the following brief proposition: "By the term quickening," he observes, "is understood the first sensation which the mother has of the motion of the child which she has conceived."

It was the late Dr. Seguin Jackson who first satisfactorily explained the cause of quickening. After examining the opinions of the most approved writers and teachers of midwifery of his time on the subject, we find the following announcement of his very ingenious theory:—"I must reject however the received opinion that the specific sensation experienced by the mother under the term quickening, is to be ascribed to the first perceptible motion of the foetus, when that foetus is vaguely said to become animated: because—1st. The sensation of quickening is not constant and universal; some women never experiencing it, and others with some of their children only. I do not speak of those first obscure but gradually increasing motions of the child, felt by every pregnant woman, and with numerous repetitions during gestation; but of that singular and specific sensation felt but once in the same pregnancy, always disordering the woman for a time, often occasioning her to faint, and which has been pointed out as marking the period when the embryo receives the principle of animation under the term quickening. 2nd. It has a distinct character from any subsequent motion of the child: no woman ever admits that it resembles in the slightest degree the struggles of the foetus. 3rd. This sensation is never repeated in the same pregnancy; which should really happen, if it arose from the struggles of the child. 4th. It is totally incomprehensible that any motion of which the child might be supposed capable in the fourth month,

should communicate such a sensation to the mother as to produce *deliquium animi*. On these grounds it is quite impossible for me to believe the doctrine which with gross want of precision ascribes the phenomena of quickening to some sudden imparting of life to the foetus, or to its trifling and obscure motions when first perceived by the mother : I believe the phenomena, observed without prejudice, will bear me out in the assertion, that it does not arise from the foetus, but from the uterus, and belongs not to the child but to the mother. It is a known fact that the uterus in the early period of pregnancy descends into the pelvis, and there remains usually till the latter part of the fourth month ; and that as it enlarges it necessarily rises above the pelvis into the abdomen. There are indeed three circumstances or facts worthy of notice connected with this change of local position of the uterus. 1st. The ascent of the impregnated uterus from its position in the pelvis to its subsequent station in the abdominal cavity is sometimes gradual and unobserved ; THEN THE SENSATION OF QUICKENING IS NOT FELT. 2nd. The uterus is sometimes so impacted in the pelvic cavity as not to reach its final station within the abdomen, without the assistance of art : then occurs retroverted uterus, during which quickening is never felt. 3rd. At other times, and those frequent although not constant, there exists some slight impediment to the ascent of the uterus, on WHICH BEING OVERCOME, IT RISES AT ONCE INTO THE ABDOMINAL CAVITY, constituting what has so long been referred to the foetus under the term quickening. The sudden intrusion of the volume of the uterus among the abdominal viscera, organs of high sensibility, accompanied by as sudden a removal of pressure from the iliac vessels, is quite equal to the production of the sensation called quickening. No woman quickens,—I am compelled to use this strange term, improper when referred to the foetus, and absurd certainly when applied to the mother,—while the uterus remains in the pelvis, nor when it HAS ACTUALLY ARISEN above the brim of that bony cavity, and is settled in its place in the abdomen ; BUT THE SENSATION IS FELT IN THE TRANSIT AT THE MOMENT WHEN THE UTERUS, UPON QUITTING ITS RESIDENCE IN THE PELVIS, ENTERS THE ABDOMINAL CAVITY. This doctrine admits of verification or rejection by experiment and observation. If those who are extensively employed in the practice of midwifery will watch the sensation of quickening as it occurs simultaneously with the change of locality in the uterus, they will find how near it is to



a demonstration." Medical and Physical Journal, vol. xxvii. p. 441. Lond. 1812.

Since the above date little new has appeared on the subject in this country. But in America Dr. S. Jackson's doctrine has met with an earnest opponent in Dr. Dewees. In the author's opinion, however, the latter gentleman has made no points nor gained any triumphs. Dr. Dewees's *Compendious System*, p. 119.

8. OF THE MOTIONS OF THE CHILD IN UTERO AS AN EVIDENCE OF PREGNANCY.—The actual movements of a child in the womb are of course an evidence of the fact of its being there. But women have sometimes had sensations which they have referred to the actions of a child in utero, but which in fact have been occasioned by other causes, as for example by flatulent movements of the intestines, which have been known to give similar sensations even to men. The first movements of the child are often so weak as to make the cause of the sensation produced by them, when uncombined with other proofs of pregnancy, very uncertain. But as pregnancy advances, they become gradually stronger, and eventually so much so as to become a source in many instances of much annoyance and distress to the patient. Sometimes the motions of a child in utero are very obscure in their effect on the mother, so as to induce her frequently to doubt her former impressions, and to fear that she must be the subject of disease, instead perhaps of a wished-for pregnancy. In such cases it will be of use for the practitioner to lay his hand, rendered cold by immersion in water, upon the abdomen; and by making considerable pressure upon the uterus he will often be able to feel the child move very distinctly. But sometimes it may not move although it be present. Therefore a want of motion does not absolutely prove a want of child.

9. OF ENLARGEMENT OF THE ABDOMEN AS A SIGN OF GRAVIDITY.—This enlargement begins at the hypogastrium, whence it very gradually ascends. The French usually describe the lower part of the abdomen as flatter during the first month of gestation than at any other time. When therefore the menses disappear suddenly, and a great enlargement supervenes quickly, the probability would be, that the latter was the effect of other causes. On the other hand, when the enlargement is from disease, as dropsy, enlarged ovary, &c., we might expect symptoms to accompany such enlargement differing in character from those of pregnancy, such as difficulty of breathing, scarcity of

urine, absence of milk in the breasts, and the enlargement would embrace the entire breadth of the abdomen. A softer feel than usual, and perhaps a more or less distinct fluctuation of fluid within the abdomen, being occasional circumstances founded on the state of the general health of the subject; an enlargement of the abdomen might possibly result from an increased size of the uterus, although such an enlargement might not be an effect of pregnancy. In doubtful subjects of this kind we have therefore to distinguish true and foetal pregnancy, from all sorts of false pregnancies, as they have been popularly called; the effects of distension of the same organ, from other causes of enlargement; such as lodgements of morbid fluids in the uterine cavity, its mouth and neck being made up by disease; true conceptions become blighted in their progress; offensive and half-organised residua of effused blood commonly called *molæ* and other tumours, whether adherent to the parietes of the uterus, or loose and unconnected within its cavity; and lastly, the retention of the catamenial fluid, in consequence of a morbid occlusion of the orifice of the womb, or of some part of the vaginal passage. The diagnosis between the characteristic developments of true pregnancy and those of the diseased enlargements of the abdomen just enumerated, will mainly depend on the practitioner's knowledge of the symptoms incident to diverse forms of abdominal developments in the female, and his skilfulness of taxis in the detection of obscure pathological conditions.

10. OF POUTING OR PROJECTING FORWARD OF THE NAVEL.—This is an invariable accompaniment of pregnancy after the sixth month. But inasmuch as it may be the effect of other enlargements of the abdomen besides that from pregnancy, it is obvious that it requires the concurrence of other symptoms to make it a valuable test of pregnancy.

11. OVERWHELMING SLEEPINESS IN THE DAY-TIME AND FRIGHTFUL DREAMS AT NIGHT, should be placed among the doubtful signs. The remedies are, mild aperients, abstinence from the use of wine and fermented liquors, and indeed from too much indulgence in the pleasures of the table generally, together with uniformly kind treatment on the part of the husband and friends.

12. HEARTBURN is a rare symptom of early gestation. Its presence as a test of early pregnancy is therefore of no great value, as it is a common symptom of dyspepsia from other causes.

13. AN INCREASED SECRETION OF SALIVA.—This is not a general accompaniment of pregnancy. It is seldom, however, an effect of distension of the uterus from any other cause than gravidity.

14. Fluor albus, pruritus of the genitals, herpetic affections of the vagina and its adjoining surfaces, moderate prolapsion of the uterus, cedematous fulness of the feet and ancles, are rather morbid accompaniments of pregnancy than circumstances specially diagnostic of that state. The same may also be observed of certain anomalous symptoms, chiefly referable to an excessive sensibility of the nervous system; as tooth-ach, the ear-ach, neuralgia of the face and temples, reduced power of vision, temporary gutta serena, total and permanent blindness, tinnitus aurium and deafness, &c. &c. These symptoms will accordingly more properly come to be considered under our next head of subject.



## CHAPTER XI.

## OF THE DISEASES OF PREGNANCY.

By the diseases of pregnancy are to be understood, those maladies which are produced by pregnancy, or else such as may depend upon other primary causes, but which occur during gestation, and therefore require to be treated in connexion with that function.

The diseases of pregnancy have often been distributed into three divisions; each division embracing singly the diseases of three months. It often, however, happens that the diseases of the first three months present themselves also in the second three months. But as many of these affections are more common in the earlier months, whilst others occur almost exclusively in the latter months, we shall distribute them under those two heads.

In all practical inquiries of this kind it is very satisfactory to know the causes of disease; for by a knowledge of the cause we are often led to a knowledge of the proper method of treating it. Among the diseases of pregnancy, there are some over which we have little or no control during the earlier months, but which become comparatively mild and manageable towards the period of quickening. Sickness and vomiting are symptomatic of a disorder of the stomach of this class: they often cannot be relieved at the period when they are most urgent, but go off spontaneously about the time of quickening. The same remark applies to certain inconveniences which are referred to the genital passage, and which are to be ascribed to pressure of the uterus upon the neck of the bladder: inasmuch as they cannot be removed until the uterus rises above the level of the neck of the bladder.

The circumstance of menstruation being suspended in a pregnant woman has led to the supposition, that there must exist a plethoric condition of the vessels during that state, and consequently that PLETHORA must be the cause of many of the diseases which present themselves at that period. But if this were the case, the vascular over-fulness in question would be likely to affect the constitution much more in the earlier than

during the latter months of pregnancy ; it being a fact that the foetus, for whose benefit it is supposed the blood is reserved, increases in bulk in the latter months compared with the earlier, in the proportion of five to one. We should therefore conclude that the retained menstrual blood could not be consumed by the foetus in the earlier months, and that thus it might become productive of a congested state of certain portions of the mother's sanguiferous system ; and that in the latter months it might require a more ample supply than could be provided for it by our supposed retention of the menstrual secretion. There are, however, some constitutions in which there would appear to be a greater increase of irritability than of blood. There are indeed three principal causes which have the effect of modifying the diseases of pregnancy ; viz. plethora, irritation, and mechanical pressure.

OF SICKNESS AND VOMITING IN THE EARLY MONTHS.—This is the most frequent and troublesome affection of the early months. We should first ascertain how far this sickness might be symptomatic, or whether it might not depend upon some actual disease of the stomach. When the tongue is furred, with a bitter taste in the mouth, accompanied by loss of appetite, with a disposition to an excessive discharge of saliva, there is great reason to apprehend that the stomach may be in a diseased condition. In this case we should prescribe some rhubarb and calomel, and afterwards some stomachic bitters ; or, if these fail, we may find it necessary to give some mild emetic, as ipecacuanha, and afterwards the stomachic bitters.

The sickness and vomiting may, however, sometimes depend upon a morbid affection of some other organ. In that case it would of course follow, that the organ originally affected should be made the principal subject of treatment. When the sickness is supposed to be the effect simply of sympathy with the pregnancy, we usually, in the first instance, content ourselves with treating it by palliatives ; and the saline effervescent draught is an elegant remedy of this kind. Soda water, if preferred in point of flavour, may be conveniently substituted. Minute doses of opium after previous evacuations may have the effect of allaying irritation. If there is any evidence or probability of an acid prevailing in the stomach, it might be necessary to combine bitters with magnesia, soda, or carbonic acid gas. If we suppose the sickness and vomiting to be an effect of intestinal or peritoneal inflammation, other

symptoms of a febrile state would present themselves, accompanied by tenderness upon pressure of the part affected. We should consider what connexion such symptoms might have with the pregnancy: but of course we should bleed under those circumstances without delay, and on a scale commensurate with the activity of the febrile part of the case.

If the vomiting should appear to arise from an excessive irritability of the stomach, a small portion of crude opium, viz. a quarter or half a grain, might be advantageously exhibited from time to time. The food must be carefully regulated both as to quantity and quality. That food should be considered the best, which possesses the greatest quantity of nutriment in the smallest bulk. Instead of diluents and mere slops, we should prescribe the use of farinaceous vegetables easy of digestion, puddings made with eggs, animal jellies, strong but simple gravies, beef tea, good mutton or chicken broth warmed with condiments, &c. &c. Tea should in general be proscribed, as being frequently unpalatable to pregnant women, and cocoa or chocolate, with a good supply of milk in it, should be substituted. Something should be taken at moderately frequent intervals; that is, at intervals of about three or four hours. Ginger beer, or a very weak malt liquor in a state of brisk effervescence, might be tried from time to time, and if found to agree and to abate the disposition to nausea, might be repeated in small quantities. It has been attempted to convey nutriment to patients incapable of receiving any through the stomach, in consequence of its being constantly rejected, by the absorbents of the skin by means of rubbing in milk, etc.: more nutriment however may be introduced into the system by clysters. If the stomach is become exceedingly irritable, it may be sometimes expedient to offer it nothing until the irritation shall have been entirely allayed; and to depend solely on the vicarious services of nourishing enemata. In obstinate cases it may be worth while to attempt relieving the stomach by exciting a counter irritation in the neighbourhood, as by rubefacients, and perhaps most effectually by the application of a blister to the pit of the stomach. When the symptom is very harassing, we must leave nothing untried. It has sometimes happened that this irritability of the stomach has been produced by a residence in the neighbourhood of an offensive manufactory; although at other times it had no disagreeable effect. Removal is the remedy. Abstinence from the use of medicines may occasionally be had



recourse to with much advantage. A moderate general bleeding is seldom to be rejected as being either injurious or worthless.

OF A PLETHORIC STATE OF THE BLOOD-VESSELS. — Plethoric women suffer frequently in the early months from headach and pains of the sides, loins, and different parts of the abdomen. Where there is an evidence of a state of overfulness, it may always be remedied by venesection and spare diet. But these affections may possibly depend upon a constipated state of the bowels. It is therefore better that such patients should be put on a regular plan of obviating costiveness which may not occasion much disturbance in its operation.

Women have sometimes a difficulty in walking, at an early period of gestation, from a sense of weight and bearing down they are subject to in consequence of the enlargement of the uterus and its pressure on the surrounding parts. From the same cause they have often a difficulty in passing their urine, and now and then they cannot pass it at all. At other times they suffer from a constant desire to make water; and this or the other affection will prevail according to the part of the bladder pressed upon. When they cannot void the contents of the bladder by their natural efforts, they will require relief: but by a little management they may often be put in the way of relieving themselves: and this is to be effected by pressing up the uterus, which some women may be instructed to do, by simply describing to them the manner of doing it, and directing them immediately to follow it up by making the effort. If this does not succeed, the water must be drawn off by means of the catheter.

Sometimes this difficulty in emptying the bladder is accompanied by a discharge from the vagina: and encountering these affections in combination, we might be led to the idea of gonorrhea, which, under the circumstances now described, is found most rarely to present itself; whence a little experience makes us very cautious of harbouring such suspicions. Of course we must never express such suspicions, excepting in the most guarded manner, or simply by interrogatories to the husband. There is always a secretion going on in the vagina; and the womb, at this time in a state of temporary descent, throws the vagina into folds, and thus increases the natural secretion to a degree which may amount to a morbid discharge. In a case of this kind the woman must endeavour to study her own comfort and convenience by

keeping as much as possible in the horizontal posture, until the womb begins to rise up out of the pelvis, which takes place in the third and fourth months of gestation. The symptoms may then be expected to go off spontaneously.

OF RETROVERSION OF THE WOMB.—The next complaint of the earlier months of pregnancy of any importance, is retroversion of the uterus. In a manuscript copy of Dr. Haighton's lectures, the author finds it stated, that this malposition of the womb was described upwards of a hundred years ago by a physician of Leyden. Not having been successful in his endeavours to discover the record of the description alluded to, he feels disposed to take for granted that Gregoire, a celebrated professor of midwifery at Paris, was really the first who probably gave an adequate pathological history of it; which it is well known he did in 1746, to a class of English students who were at that time pursuing their professional studies in the French metropolis.

In 1754 Dr. William Hunter invited the profession to a public lecture which he delivered on a fatal case of the uterine malposition in question which had occurred in the practice of Dr. Martin Wall. See Dr. William Hunter's *History of Retroversion of the Uterus in the Medical Observations and Enquiries*, vols. iv. v. and vi.

The predisponent causes of retroversion of the womb are usually considered to be, a relaxed state of the general health, a relaxed state of the ligaments and peritoneal productions of the uterus, a large pelvis, and habitual overfulness of the bladder and rectum. It appears that this malposition of the uterus has sometimes taken place gradually, and without any known occasional cause. In other cases it has succeeded pretty speedily to falls, violent exertions, and to quick or forcible movements of the body. The period of pregnancy most subject to its accession is between the third and fifth month inclusive.

The first symptom usually experienced in consequence of this change of position of the womb, is difficulty and often impossibility of voiding the contents of the bladder. The bladder may previously, in consequence of accident or neglect, happen to be over-distended: the subject, being in her third month, makes the attempt to relieve herself, and experiences unexpected difficulty. She may also feel a similar call to empty the rectum, which moreover she finds herself unable to accomplish. These attempts are soon followed by increased bearing-down efforts, accompanied

by abdominal pains of great severity. During the efforts thus frequently made, nothing comes away but mucus. Symptoms of this kind acquiring an unusual degree of intensity, an experienced medical practitioner would naturally suspect that retroversion of the uterus might very probably be the cause.

His first duty would be of course to propose an examination per vaginam; and if on introducing his finger into the vagina he should find the mouth of the uterus in the middle of the pelvis, it would follow that there could be no retroversion of the womb: but if, on the contrary, he found the cavity of the pelvis to contain a large fleshy pouch filled up with a substance of considerable firmness and solidity, he would naturally conclude his case to be one of retroversion; a case of the womb lying across the pelvis from behind forwards; the fundus occupying the hollow of the sacrum, and the os uteri carried forwards and upwards, so as to be tilted against the symphysis pubis, occasioning much painful pressure against the urethra and neck of the bladder.

The particular time at which the symptoms of this malposition of the uterus may come on, will depend in a great measure on the capacity of the pelvis. But independently of the agency of some accidental cause, these cases most frequently present themselves about the third month of gestation: not usually before that period, because up to that time the womb is so moderate in bulk, that, let it lie as it may, it will not produce much inconvenience; and not much after that time, because then it begins to rise above the brim of the pelvis into the cavity of the abdomen, and must require some very powerful cause to retrovert it. But there are exceptions to the principle of thus dating the advent of retroversion of the womb; for when the pelvis is distorted, there is less room for the progressive development of the uterus, and retroversion would happen sooner; and when the pelvis is unusually large, the symptoms, for the opposite reason, might not come on so soon; perhaps not till the fifth month. The symptoms of retroversion of the uterus do not necessarily imply pregnancy; as the womb may be enlarged by disease, and on that account become liable to be retroverted. But in general, the symptoms thus produced are not so severe, nor do they come on so suddenly; for in pregnancy the womb increases sensibly every day; and if then displaced in the manner here supposed, the effects may become urgent or fatal in a few



days. But when the enlargement arises from the presence of disease, its size does not usually increase rapidly. The womb has been known to have been in a state of retroversion for years without any remarkable increase of symptoms.

There must always be some cause to produce retroversion of the womb. Over-distension of the bladder is probably the most frequent. This acts upon the fundus uteri so as gradually to throw it over; and as the bladder distends, it has also a tendency to draw up the mouth of the womb, and thus to complete the retroversion. Women should therefore be very cautious that they do not place themselves in situations where they may become liable to restrain the natural functions of the organs within the pelvis. Sometimes a fall has had the effect of causing retroversion, the bladder having been previously in a distended state. Without this previous distension of the bladder, it would seem however doubtful whether a fall could produce this effect. The fall should, of course, be presumed to act principally on the bladder; and the bladder to transmit the impulse to the uterus. But in the case of a fall backwards, there would be a tendency in the uterus itself to be retroverted, independently of the action of the bladder. The womb however being actually retroverted, it comes into a situation to produce pressure upon the urethra, which will have the effect of increasing the malposition, and consequently of exasperating all the symptoms.

Retroversion of the womb may be caused by dropsy of the ovaries.

When the usual symptoms have declared themselves, great care should be observed to keep the bladder empty: and if this is done, nature will sometimes restore the womb to its proper situation. This will not always happen, and the reduction, if effected, will require manual assistance. Whether it recovers its natural situation spontaneously, or is reduced by the practitioner, the bladder should not be allowed to become again distended. The patient therefore should not take much fluid, and the water should be drawn off at least twice a day. When the symptoms are moderate, we may perhaps go on in this way for some time; but when those of violent irritation come on, we must have recourse to more active measures. Sometimes there is great difficulty in keeping the bladder empty. The use of warm baths may perhaps enable us to allay irritation. We

must keep by us a large choice of catheters, such as small, flat, flexible, and catheters of different curves.

Some cases are attended by a most urgent bearing down backwards. It will be required in such cases to have the power of throwing up enemata. For that purpose we should have a well-selected gum-elastic bottle, with a flat pipe attached to it, curved correspondingly to the curve of the sacrum. The duty of administering enemata cannot be well entrusted to the nurse; and even the practitioner must have a good knowledge of the parts as well as the adroit use of his hands, or else he will not succeed in performing it. But sometimes the pressure is so great both on the bladder and on the rectum, that we may not be able to relieve either by these palliative measures. It will therefore possibly become necessary, in order to prevent rupture of the bladder, to puncture that organ above the pubis. Dr. Cheston of Gloucester found himself obliged to perform that operation in a case of this kind, and the woman was much more relieved by it than he had anticipated. On afterwards examining the vagina, he found that nature had made a successful effort, and had reduced the womb.

The operation of reduction, if skilfully and VERY SLOWLY performed, may sometimes prove successful, although we might not have succeeded in previously emptying the bladder. To effect that object, we have to place the woman on her knees and elbows, with her thighs at right angles with the rest of her body; so that the brim of the pelvis shall be turned downwards and backwards. The gravitation of the uterus in that direction might be expected to assist us in our efforts to reduce it. We have then to pass the first and second fingers of the right hand, the nails not being too long, within the sphincter ani, and some way into the rectum, following the curve of the sacrum and its caudal appendage the coccyx, till they arrive at the tumour formed by the fundus of the uterus. Upon this tumour we have to apply and keep up a steady bearing, so as gradually to raise it up. This however the young practitioner is to understand is not to be done by sudden and violent jerks; but by a gradual and steady effort. In some cases, the fingers may not be found long enough to reach the fundus uteri. We may then pass an instrument that shall be of sufficient length to continue the bearing; a piece of cane, for example, of considerable thickness, with a broad, firm, and finely textured piece of sponge well secured to its top. Some have recommended the

introduction of the fore-finger of the left hand into the vagina, to hook the mouth of the womb in order to depress that part of it whilst the fundus of the uterus was being attempted to be raised. When the sponged cane has borne for some time upon the retroverted fundus, the latter will sometimes be felt to pass suddenly up; because the pressure applied to it overcomes the resistance opposed to it by the base of the sacrum.

There are two cases on record, in the management of which, and after failing to effect the replacement of the uterus by the common method, the practitioner passed up his entire hand into the rectum. The author is quite convinced, from some trials of the same kind he has himself made on the dead subject, that such a thing may be done without rupture of the sphincter ani. One of the cases alluded to occurred in the practice of M. Dussausoy. The ordinary plan failed. "He then, with PROPER CAUTION, passed into the rectum the four fingers and thumb of his right hand; and spreading them on the whole convexity of the tumour, in such a manner as to embrace its entire surface, he applied considerable pressure from below upwards and from behind forwards. He thus effected his object; and instantly upon the reduction being accomplished, the practitioner's hand remained insulated and free in the rectum. The uterus having thus been restored to its proper place, the bladder was easily relieved by means of the catheter." The hand was introduced into the rectum, the reporter states, without much difficulty, and without inflicting any injury on the sphincter of the anus. M. Dussausoy was senior surgeon at the Hôtel Dieu of Lyons at the time of the operation. *Journal de Médecine, Chirurgie, etc.*, tom. lxxvii. p. 283.

We may know the uterus to have been effectually reduced, if upon examination we find its orifice occupying the middle of the vagina as usual. Where there has been much difficulty in effecting its replacement, we may generally infer that there will be less likelihood of its being again retroverted. When the retroversion has happened during pregnancy, and much jamming has taken place; the child's life has been compromised, and it has almost always been expelled prematurely; but, on the contrary, where there has not been much jamming, the gestation has gone on to the full period. In general, the longer the symptoms shall have continued, the greater will be the difficulty in effecting the



reduction ; whilst in a certain proportion of cases, the womb has been found so largely developed, and so firmly fixed in its malposition, that all attempts to reduce it have completely failed. In such extreme and forlorn cases, Dr. William Hunter proposed to lessen its bulk by puncturing it through the vagina with a small trocar, and letting out the liquor amnii : and dangerous as this practice would seem to be, still upon the whole it appears less dangerous than the disease itself. The author is not aware that there is any recorded experience on this subject. We know the wide sympathies of the uterus and the fatal tendency of some of its inflammations ; and therefore we should never cut into it lightly. Mr. Cruikshank once divided the symphysis pubis, in a case of this kind. Such an operation properly performed might prove a very safe proceeding ; and the section being thus carefully effected, the opposite surfaces might be expected to recede from each other at least an inch without much force being used. This might set the orifice of the uterus and urethra at liberty, so as to make the reduction of the entire uterus 'more easy.

The womb has been known to be retroverted after delivery, when it has contracted to the same size as when three months advanced in gravidity. But in this case it lessens every day, and may be expected eventually to effect its own reduction.

Upon the whole then, from what has been stated of the history of retroversion of the uterus, and from what has long been known of its result in different cases, it seems to the author quite evident that there is not any one method of treatment that can be recommended as THE PROPER OR BEST in all sorts of cases. It has often happened that the uterus has only been very partially retroverted ; that it has been only so far displaced in this respect, as to occasion some impediment to the free evacuation of the contents of the bladder ; but not enough to prevent the introduction, even with some facility, of the catheter into the bladder. The cases here alluded to are perhaps of more frequent occurrence, in the first instance, than any other. So often indeed did such cases occur in the practice of some of the leading obstetricians of the metropolis towards the middle and latter part of the last century, that more than one of them wrote and published essays having for their object to recommend the sole use of the catheter in all cases, and to dissuade from all attempts to reduce. See *An Account of two Cases of Retroverted Uterus*, by Mr. Richard Croft, surgeon in London. *Simmons's London Medical Journal*,

vol. xi. p. 380. See also *Practical Essays on the Management of Pregnancy and Labour, etc.* by John Clarke, M.D., London, 1793. In the first of Dr. Clarke's essays the author treats the subject of retroversion of the uterus; which he says is caused by the fulness of the bladder; and proposes as the speediest remedy the drawing off of the urine, when it will regain its position. We should NOT endeavour to replace it by the method usually recommended. He moreover adds, "It is scarcely ever proper, except in the weakest constitution, to omit taking away blood from the system. Dr. Denman in the latter years of his practice seems to have pretty strongly imbibed this same doctrine. See his *Introduction to the Practice of Midwifery*, ad locum, where the author thinks he recommends it much too exclusively. There are unquestionably cases of retroversion where the introduction of the catheter is impracticable, until some change is previously effected in the position of the uterus. The relaxation consequent on a full bleeding followed up by enemata and fomentations, might indeed render that as well as the operation of reduction comparatively easy, after both had been previously difficult or impracticable. The operation of reduction has sometimes been found exceedingly difficult when first attempted, but subsequently, and by reason probably of some further developments incident to the gestation, it has been performed quite easily. In illustration of this point, see cases in the 4to edition. If after the bladder shall have been emptied, the uterus should still continue to retain its retroverted position, attempts should be from time to time repeated to effect the reduction of that organ; but upon every such occasion the contents of the bladder should be previously removed.

Of the fatal cases of retroversion which we have recorded, some appear to have been the results of extreme contusion, inflammation, and ill-conditioned suppuration of the tissues. That variety of fatal result may be usually predicted from its having been preceded by the following symptoms. 1. Retention of urine, at first moderately, but afterwards more intensely painful, accompanied by a sense of great weight and fulness at the fundament together with tenesmus. 2. A sense of fulness and tearing pain in the thighs. 3. The case becoming aggravated by a violent bearing-down pain at the outlet of the pelvis. 4. Symptoms of pyrexia, great excitement of the heart and arteries, severe headach, thirst, etc. 5. The bearing-

down efforts occurring in paroxysms of extreme severity; without an entire freedom from pain even during the intervals. 6. The calls to discharge the contents of the bladder and rectum becoming more frequent, and progressively more intensely distressing, and being both accompanied and followed by great anxiety, impatience, and restlessness. 7. Delirium. 8. Intermitting pulse. 9. Excessive agony. 10. Coldness of the extremities. 11. Moribund sweats, and sometimes convulsions. Death has in other cases succeeded to such violent attempts to effect the reduction of the womb as have directly inflicted fatal ruptures on the bladder and its adjoining tissues.

Looking at the average of deaths from rupture of the bladder, and comparing them respectively with their histories, the author feels pretty confident that the majority of them are results of spontaneous rupture consequent upon over-distention of the bladder. Over-distention, however, of the bladder consequent upon retroversion of the womb does not necessarily, and in every case, furnish ground for a fatal prognosis: although neither reduction of the womb nor the evacuation of the bladder might be found practicable.

The following references on this subject may be perused:—Dr. Hunter's papers, in the Medical Observations and Inquiries. *Medic. Observ. and Inquiries*, vol. iv. p. 388. *Medic. Communic.* vol. ii. p. 6. Corvisart's *Journal de Médecine*, etc., tom. xxvii. p. 415. *Journal de Méd., Chirurg. et Pharm.* tom. lxi. p. 64. *Journ. de Méd., Ch. et Pharm.* lxvi. p. 85. *Journal de Médecine, Chirurg. et Pharmac.* tom. lxxxviii. p. 34. Perfect's *Cases in Midwifery*, vol. i. case 68, p. 394. Heath's *Translation of Baudelocque's Treatise on Midwifery*, vol. i. p. 164. Simons's *Medical Journal*, vol. i. p. 392, abridged from the *Transactions of the Royal Medical Society of Copenhagen*, vol. ii. *Medical and Philosophical Commentaries*, vol. vi. part 2. p. 215. See especially an extraordinary case of retroversion of the womb at a late period of gestation, by Dr. Samuel Merriman: being the substance of a tract by that intelligent writer, entitled a *Dissertation on Retroversion of the Womb*, including some observations on extra-uterine gestation. 8vo. London, 1810.

OF THE DISEASES OF THE LATTER MONTHS OF PREGNANCY.—Those which are very distressing in the early months sometimes continue to harass the patient to a late period of gestation. One of these, and a very important one, is sickness and vomiting.



This functional derangement of the stomach breaks down the health very much, and sometimes even endangers life. For this sickness, especially of the latter months, the whole of the *Materia Medica* has sometimes been ransacked in vain for a remedy. All changes of position and of circumstances, change of residence, all possible attention to the best rules, of personal management, and the punctual observance of the best precepts on the subjects of diet and regimen, have often been adopted and pursued without being followed by the slightest mitigation of the symptom. As a last resource, and in cases of extreme intensity, threatening destruction of life, the operation for the induction of premature labour has been occasionally proposed, but very rarely entertained and made available for the patient's preservation. The author is in possession of notes of a case of this description which occurred in the practice of the late Dr. Haighton; and as they were taken as nearly as possible in the very words of that eminent teacher, the reader he is sure will be gratified by a perusal of them.

"Some time ago I was applied to by a lady in the city. In her first and second pregnancy, the sickness was so obstinate that nothing could relieve it but delivery. In one of her gestations she went her full time; in another only to the seventh month; but on both occasions she was equally relieved by delivery. In her second pregnancy the vomiting had not been extremely violent. When I saw her, it was in her fourth pregnancy, and about the sixth month of gestation. The practitioner who attended her had treated her very properly, but without success. I ordered something; but it had no better effect. She was removed into the country, but she went no further than Islington; and she returned without receiving any benefit. She was then in her seventh month. Her sickness grew worse; but it underwent some changes: for sometimes it would be very violent, and then it would intermit. The intermission, however, would last but a short time, and then it would end in a violent diarrhoea; and if means were used to stop the looseness, then the sickness immediately returned. In this way she went on until she was very much reduced. During a few days in the progress of this exhaustion, I observed that her strength declined much faster than before. I therefore expressed to her mother my wish to be permitted to invite a tendency to labour. No obstacle was thrown in my way. I put her into a hip-bath:

but this increased her symptoms without producing the effect I hoped from it. It was now the middle of the seventh month; and I saw she could not live till the ninth. I therefore proposed to bring on premature labour. But not liking to take the whole of the responsibility on myself, I desired the friends to send for some respectable person to meet me. The gentleman who came fell readily into my ideas; but did not see that the danger was so pressing. He therefore thought it better to wait for a fortnight longer. Seeing that this was the only point with him, I urged my own opinion with this argument; viz. which was most likely to estimate the danger correctly, HE, who had taken a transient view of the case, or I, who had watched it day after day? He allowed the strength of the argument; but said he would rather turn it over in his mind, and meet me again in the evening. At this time, unluckily for the patient, she had retained about half-a-pound of nourishment, and the sickness had not increased. He thought it proper therefore again to defer the operation; although I explained that this was only one of those delusive intervals which terminated in diarrhoea. So indeed it proved; for next day she was exceedingly ill. I now told him, if he had not made up his mind, that I had. I added, that if he chose to undertake the bringing on of premature labour he might; but I thought the time was past; and so did he. In two days more the patient sunk. Now, I do not think it right to say, that this woman would have recovered, if premature labour had been brought on in proper time; but it is my opinion that it would have given her a great chance."

The author has performed the induction of premature labour in the circumstances above described three times. In one of them it was had recourse to in the seventh month, the patient having made an error of one month in her reckoning. The child, which was born alive, died in about two hours afterwards; the mother was soon restored. The second case was, on the whole, more prosperous. The child, which had the appearance of one of eight months' growth, was given to a wet nurse who lived in the house, and who took excellent care of it. The mother also eventually recovered. Her sickness left her immediately after delivery; but she was the subject of feeble health, accompanied by a dyspeptic state of stomach for some years afterwards. The subject of the third case might be said to have been in a cachectic condition before her pregnancy.

When arrived at her sixth month inclusive, she was exceedingly harassed by an intense irritative fever, the effect of inanition, as the author supposed, which threatened a speedy and an alarming issue. The operation for the induction of premature labour was performed. The child of course was lost. The mother recovered rather rapidly, and enjoyed moderately good health afterwards, and has since borne several living children at the full period.

OF JAUNDICE DURING ADVANCED GESTATION.—Pregnant women are sometimes attacked with jaundice at an advanced period of their gestation; and it devolves upon the practitioner to consider well whether it may not depend upon actual disease co-existing with the pregnancy, or whether it may not simply depend on sympathy with the actions of the gravid uterus. It may moreover be produced by pressure upon the vascular tissues, called Glisson's capsule. We should of course expect this variety of jaundice to be produced only about the fifth and sixth months of gestation; gravidity being presumed to be its cause. Active remedies are not necessary.

A woman may be the subject during pregnancy of BILIARY CONCRETIONS. The jaundice thence resulting must be treated on common principles; but we should pause before we administer an emetic; as it might have the untoward effect of causing abortion. In such a case our prognosis should be more unfavourable than if the jaundice was deemed to be merely an effect of sympathy with the actions of the gravid uterus. The author recollects two cases of jaundice thus complicated whose subjects were admitted into a public hospital. Both of them were pregnant. One was married, and gave intimation of her being pregnant; the other was not married, and concealed her situation. The first was received into the hospital as a subject of tertian ague, for which one of the physicians prescribed bark. But the bark disagreed, and produced vomiting and abortion. In two days afterwards the whole of the jaundice had disappeared. She had advanced in her pregnancy about five months. The other, being an unmarried woman, omitted to mention the fact of her pregnancy. She was treated actively for jaundice by another physician, who gave her emetics. Part of her ovum came away, and was followed by a sanguineous discharge. She then confessed that she was pregnant. The emetics were laid aside, and innocent placebos were substituted. All her jaundice left her, and in a few days subsequently she was delivered of the remainder of her ovum. When the jaundice is a mere effect of gestation, it is not to be consi-



dered alarming. It may cure itself; although there can be no objection to attempt the removal of it by a moderate quantity of rhubarb and calomel. If not relieved by these means, it will probably be discovered not to depend upon pregnancy as a matter of mere sympathy, but upon the agency of some co-existing disease.

Women during the latter months of gestation are generally, or at least not unfrequently, liable to COSTIVENESS: or, if naturally disposed to constipation, the state of pregnancy is very apt to increase it. Fæculent accumulations under these circumstances may take place, and occasion severe colic, such violent abdominal pains as a woman near her time may very excusably mistake for those of incipient labour. Under sufferings of this description, a single day should not be allowed to pass without procuring an evacuation by the bowels. Where this duty has been neglected, great quantities of fæces have accumulated in the rectum, and there have become so much indurated as to have formed an impediment to the descent of the column immediately above. This by its reaction has produced tenesmus, painful gripings, and watery evacuations. On proper examination, the rectum has been found enormously distended with hardened fæces; between which and the intestine, a groove or channel has sometimes been formed by the forcible action of the bowels from above, by which these watery evacuations were discharged. In the more neglected forms of fæcal accumulations of this kind, mechanical implements of various sorts have been made use of to break down the masses of hardened fæces here described, in order to make way for the administration of enemata; such as bougies, suppositories, etc.: but of these, the best perhaps is a narrowish marrow spoon, of two or three inches length of blade, and slightly curved. This operation should be followed up by a moderately active course of aperients, together with enemata. The occasional use of milder aperients, such as rhubarb and magnesia, castor oil, or small doses of Epsom salts, should be taken subsequently if indicated even by a TENDENCY to tardiness of the bowels during the remainder of the gestation.

ANOTHER DISEASE to which women are subject during pregnancy is HEMORRHÖIDS. It is scarcely necessary here to enter into an explanation of the connexion of piles with pregnancy. Many women, by reason of the pressure of the gravid uterus upon the blood-vessels, especially the veins which have their locality in the immediate neighbourhood of the

pelvis, are apt to have the piles during pregnancy, although not subject to them at other times. Hemorrhoidal affections are commonly divided into blind and bleeding piles. Some German writers have moreover added another variety, of which the distinctive character is, that the local affection is usually preceded by severe griping pains, thence called hemorrhoidal colic. When the colic is obstinate, and the pain is presumed to have nearly reached the end of the colon, the common practice is to expedite the appearance of the piles, by causing the patient to sit over the vapour of hot water, and directing her to force down: but in cases of this kind free bleeding from the arm should seldom be dispensed with.

Hemorrhoids in pregnant women, it is obvious, must have a special reference to the patient's condition. They are no doubt occasioned, in the greater number of cases, by pressure of the gravid uterus on the hemorrhoidal veins, thus obstructing the return of their blood into the general circulation, and consequently producing those bulbous swellings and bleedings incident to the disease. As we cannot remove this pressure, we should understand how constipation of the bowels must add to the obstruction produced by it. Therefore to prevent this result at all events, laxative medicines, such as electuary of senna, castor oil, and sulphate of magnesia, should be freely exhibited. Topical applications must often be added to reduce the swelling and to relieve pain. Leeches are excellent operators in these cases. The vessels of the part are usually so tensely distended, that about a dozen leeches applied to the immediate neighbourhood of the anus might be expected to remove eight or ten ounces of blood. After the assiduous use of fomentations for some hours, the employment of astringent lotions, especially with the acetate of lead, will often be found to produce excellent effects. In extremely painful cases, accompanied by much fever, general bleeding must be premised and made a leading measure. In cases of inward piles, in addition to proper constitutional measures, it will prove a useful practice to administer an emollient enema, consisting of decoction of oatmeal or barley, with the addition of half a drachm or a drachm of the tincture of opium from time to time; the quantity of opium to be proportioned to the severity of the pain and its effects on that symptom.

There are some other diseases of pregnancy occasioned by

pressure on the sanguiferous vessels and the absorbents within the pelvis.

The pressure here supposed is, for example, a cause of *œdema* of the parts below. The *œdema* thus produced should be carefully distinguished from dropsical effusion caused by constitutional disease. In the one case, when the pressure is taken off, the *œdema* disappears. When the effect exclusively of mechanical pressure, and the patient in other respects enjoys good health, the *œdema* will be found unaccompanied by any other symptoms of general dropsy. All the inconvenience complained of will be merely the distention of the lower extremities. If the *œdema* should arrive at a state of extremely painful distention of the integuments, the medical attendant should exhibit mild but efficient aperients, such as might produce a moderately relaxed state of the bowels; and direct the use of rollers or laced stockings to give support to the over-distended vessels of the part. If the distention is so great as to threaten erysipelas, a moderate scarification of the feet at the instep may have the effect of relieving it: and there would be no danger of much inflammation or of mortification from that procedure. If therefore the distress is such as to keep the patient perpetually awake, it should be done without hesitation. These swellings immediately disappear after delivery. The author had once a patient in whom the *SUPERFICIAL ABSORBENTS* were as large as goose-quills: but he could not relieve the swelling. The patient believed herself to be in a dropsy; and that idea caused her much distress. But when she was delivered, the swelling immediately disappeared.

*PREGNANT WOMEN ARE SOMETIMES PAINFULLY DISTURBED BY THE MOTIONS OF THE CHILD.* When this happens, it may be necessary to do something for their relief. Experience would seem to justify the moderate use of opiates in these cases. Some have conjectured, that opiates might produce bad effects on the intestines of the child; but experience has not confirmed this apprehension.

Sometimes dark spots appear on the integuments of the abdomen from the rupture of cutaneous vessels. Women are often much alarmed at this appearance, considering them to be spots of mortification. When the health is good, they again speedily disappear. If the constitution however be not good, we may prescribe tonics, a generous diet, and moderate exercise in the open air.



Females occasionally towards the latter end of gestation complain of PAINS IN THE GROINS, owing to the round ligaments being put upon the stretch. From this idea of the cause, it is clear that external applications can do no great good: but they may palliate; and as we shall be expected to do something, we may direct some mild liniment with a few drops of a pleasant essential oil to be applied, and at the same time assure our patients that all inconvenience will cease after delivery. Allied to this affection of the groins, is a pain occasionally complained of, felt at the lower part of the hypogastrium, caused by the resting of the gravid uterus on the sharp edge of the pubis. Raising the womb sometimes gives relief; and that relief is rendered permanent by keeping it supported by means of a suspensory bandage. This supporter may consist of a broad belt to sustain the weight of the projecting hypogastrium, to be attached by means of intermediate lateral straps between the ends of the belt and fixed points at or near the anterior projection of each shoulder. This apparatus, however apparently well calculated to answer its purpose, cannot always be worn for more than two or three days together; the patients usually complaining in such cases of a stifling sense of oppression in their breathing, accompanied by intolerable restlessness.

Women who have had many children are occasionally the subjects of pain in the integuments of the abdomen. This is the effect of cicatrices left by former pregnancies giving way. Little in these cases is necessary to be done; and that little may consist in gentle friction of the parts complained of with small quantities of the *ceratum plumbi compositum*. Should the pain be very severe, it might be necessary to have recourse to fomentations with flannel wrung out of hot water, or a decoction of poppy-heads and the other ingredients usually supplied for that purpose.

OF DISEASES EXISTING DURING PREGNANCY, WHICH, ALTHOUGH FORMING NO ESSENTIAL ATTRIBUTE OF THAT FUNCTION, MIGHT NEVERTHELESS COMPROMISE ITS SAFETY AND PROSPERITY.—Of such accidental accompaniments we may first notice the ordinary forms of syphilis. When there is nothing more than gonorrhea, this being for the most part a local affection, it may be cured by very simple means. When in the form either of chancres or of actual syphilis, it will require mercury: and in cases where it has taken deep hold, it has been thought necessary to carry the mercurial

action to a great extent. But a thorough mercurial charge, be it recollected, is exceedingly liable to produce abortion. The degree however of this liability would seem to depend upon the period of pregnancy. When pregnancy is advanced, and a chancre only appears, this will convey the poison to the glands of the groin, and buboes will appear; but sometimes the local affection may remain for a few weeks or months without producing any evident change in the constitution. There is no fixed period between the appearance of a chancre and the constitutional sympathies which it rouses into action. A fortnight may probably elapse; more commonly five or six weeks intervene; but in some few cases, the interval is so long as to make it doubtful whether there may not have been a fresh application of the poison. The constitutional changes now more especially alluded to, are sore throat, copper-coloured spots, nodes, etc. Chancres may be removed with but little mercury, and they often go off without any at all. But much is required to prevent the constitution from being infected. It has of late years been a rather current doctrine, that when the first symptoms shall have been cured, we may cease to give mercury: but this will not prevent the constitution from being affected. Others entertaining the opposite opinion, are in the habit of exhibiting a sufficient quantity in every case to ensure the prevention of a constitutional affection; and this they continue for some time after the first symptoms shall have entirely disappeared. If there should be a chancre in an advanced stage of pregnancy, it appears to the author, that it might be advisable to exhibit a small quantity of mercury, just enough to make the mouth tender without producing salivation. If there be also a sore throat, we may use a solution of corrosive sublimate as a gargle. A quarter of a grain of the oxymuriate of mercury dissolved in four ounces of distilled water will make a proper lotion for this purpose. The same preparation of mercury may also be exhibited at the same time INTERNALLY, in doses of between one-eighth to one-fourth of a grain twice a day. The latter quantity should be considered a rather large dose. In this way the disorder may sometimes be suspended for a short time, and therefore in advanced cases till after delivery; when of course it might be necessary to recur to more powerful means; viz. such means, with certain modifications, as might be judged proper under ordinary circumstances. In this way we can often prevent the

constitution from suffering very seriously, until the interests of the gestation shall have been happily secured. If however, instead of this cautious procedure, salivation is produced, and indeed this may be necessary in some cases, then abortion becomes almost an inevitable consequence. The author is indeed of opinion that a mercurial charge sufficient to produce much febrile excitement is almost as effectual a promoter of abortion as the steel instrument usually employed to perform the operation for the induction of premature labour.

OF ASCITES COMPLICATED WITH PREGNANCY IN THE LATTER MONTHS.—When this form of dropsy presents itself during pregnancy, several important circumstances might press upon our attention, and demand our earliest and most deliberate consideration. We are sometimes asked whether the delivery may not be rendered difficult by it; at other times whether the patient might be expected to survive her delivery; and in other cases whether the child might be expected to inherit its mother's malady. When the abdomen is enormously large, it is sometimes asked whether tapping might not give relief; or how far delivery might or might not contribute towards a cure.

There is in the first place no solid reason for apprehending much additional difficulty in the labour; although if we were to theorise a little on the subject, we might anticipate something like difficulty: for as the diaphragm and abdominal muscles act as auxiliaries to the uterus in the business of expelling the foetus, it is evident when the abdomen is greatly distended with hydropic fluid, that a great portion of the expelling power must be taken off; and this at the first glance might give us an idea of difficulty: but when we consider that in these cases there is a great tendency to a relaxation of tissues as well as of the general health, our difficulty must vanish; for less expelling power will be required; and experience proves that labours under these circumstances are not usually very difficult.

In the next place, may a woman be expected to live or to sink after delivery? The answer to this question will depend upon the actual state of her health, or rather upon the precise nature, period of development, and intensity, of her complaint. Some have been subjects of dropsy at an early period of gestation, and have consequently been able to go through the incidents and changes of two successive pregnancies before it has destroyed them. But if the constitution be already broken down by a



previous disease of long duration, the same result could not be reasonably expected; for parturition itself is attended with an effort, as well as with more or less loss of blood. If extremely reduced before the accession of labour, we cannot expect that a woman will do well. Some therefore only survive a few hours, and others only a few days. Therefore our prognosis in such cases must be unfavourable, or at any rate very guarded.

Again, will the child be subject to the mother's disease? This question can only be answered by an appeal to experience; and from experience we know, that women with dropsy have often very lively and healthy children; and that others, who had been perfectly healthy during their gestation, have had children with water in different parts; some for example in the abdomen, others in the chest, and others in the head.

Finally, might it not be proper to have recourse to tapping? We cannot wonder, that in cases of this kind women suffer great pain from distention: as there is a double cause for it, viz. the pregnancy and the dropsical fluid. The great distress which the patient suffers from distention very naturally induces her to inquire whether tapping could not be performed in her case. In general, a professed surgeon would not like to do this; as there might be some danger of puncturing the womb. But without disputing this statement, the difficulty might perhaps be got over. There is considerable caution required in tapping a pregnant woman, especially in the last months of her gestation. If however, on examination, the uterus is not found materially enlarged, we may draw off the water with impunity. If on the contrary the uterus is found to contribute more than the water to the size of the abdomen, then it is LESS safe to tap. But even in this case, there is a possibility of tapping; but not in the common way. A lancet must be introduced into a prominent part of the abdomen with the following precautions. The instrument is not to be carried so far as to penetrate through the entire wall of the abdomen; but an incision is to be made only through the integuments in the first instance; and then very carefully through a small portion of peritoneum. If upon this no water escapes, then we pass a probe into the wound, and also enlarge the incision in the peritoneum. The probe may at the same time be made available as a guide to the canula. If the swelling of the abdomen be merely the effect of the uterine development, that will be distin-

guished by the usual incompressible feel which characterises the uterus in its pregnant state. If there should be a combination of water and pregnancy, the fingers on pressing the abdomen will at first cause a moderate recession of the part, and then they become sensible of the incompressible feel alluded to. If we gently strike the abdomen, there is moreover in this case a sense of undulation. It is indeed possible that an excessive quantity of liquor amnii might be the cause of the enlargement as well as of the feel of a fluctuating fluid. Therefore every accessible method should be used for ascertaining the true nature of the swelling. As a general rule, when there is great pain and distention of the abdomen, and the water should appear more the cause of the bulk than the pregnancy, in such a case it might be right to tap.

Will delivery cure the disease? It is natural enough for women to think that delivery might cure them; as they know that water is voided at the time of labour, and they cannot be expected to know whether it comes from the uterus or from the abdomen, or whether these cavities may or may not be identical. Although the abdominal water of ascites and the liquor amnii are in distinct cavities; yet it has happened in some rare instances that the water in the cavity of the abdomen has made its escape through the uterus. In these cases the water insinuates itself into the Fallopian tubes; the fimbriated terminations of those tubes opening into the pelvis, and the other ends into the cavity of the uterus. The hydropic water is supposed to insinuate itself into the Fallopian tubes after the expulsion of the foetus. It has also been supposed that something more than mechanical action must be the cause of this: for it has sometimes been observed, when there has been a brisk discharge, that a sudden cessation of it has taken place. It might therefore be concluded that as long as the tubes are pervious, agreeably to the idea of a mechanical insinuation of the water into them; or as long as they are disposed to act as living tubes, so as to perform the function of absorption, agreeably to the other idea; parturition might be looked to as a natural cure for dropsy of the abdomen.

But such hopes are not likely often to be realised. The Fallopian tubes may indeed sometimes act as absorbents, and take up all the accumulated fluid in the manner stated. The author has known one woman who had several of these accumulations pass through the uterus, or at least discharged

by the way of the genital passage. After that result, and by the use of warm medicines and chalybeates, she entirely recovered her health. Some time subsequently she became pregnant, and afterwards did quite well. Upon the whole, therefore, our answer should be, that sometimes the disease is cured by delivery, and sometimes not; so as neither much to elevate, nor, on the other hand, greatly to depress, the hopes of the patient.

The next disease which may be accidentally complicated with advanced pregnancy is hernia. In the treatment and prognosis of this case, it makes an essential difference whether the hernia is reducible or irreducible. If reducible, pregnancy produces no ill effects. The protrusion might happen at different parts, as at the external ring, the linea alba, navel, etc. If the protrusion presents at a low locality, we may observe in general that it is gradually reduced as the womb rises in the progress of gestation, and that it remains reduced till after delivery. But we are not to suppose it cured; for it is only mechanically supported in a state of reduction; and when the patient shall begin to get up and go about, it will again appear. But sometimes pregnancy has a direct tendency to produce hernia. When, for example, the womb is large and swelled inordinately laterally, it may easily cause a protrusion of the intestines at the upper extremity of the linea alba, through the ring, or under Poupart's ligament. The author has known several patients who were always the subjects of hernia during pregnancy, but at no other time. The protruded intestine in such cases is usually reduced with considerable facility. In cases where there is weakness of the abdominal parietes at the navel, we might have a protrusion at this part about the sixth month; but as the womb rises higher, it is again reduced in the further progress of gestation.

If the hernia is irreducible; we will suppose it may be at the ring; when the womb rises, it exerts the same force of traction upwards as it had previously exerted; and instead of reducing it, which we suppose it might not be able to do, it must drag it up into a state of strangulation. But the intestines are also liable to become strangulated in this situation from the same cause as in the male subject, viz. from an accumulation of fæces. If therefore we might chance to know a woman to have a hernia of this kind, we should of course feel it our duty to put her upon a proper plan to keep her bowels regularly open, and thus to guard against the operation at least of that cause. We should, moreover, inform our patient of her liability, from the intestine



being situated as now supposed, to become the subject of strangulated hernia, and also of the nature of the symptoms which might be expected to take place in the event of such strangulation: and upon the occurrence of such symptoms, it would be of all things most important to leave strongly impressed on her mind the necessity of sending for a surgeon without a moment's loss of time. Without all this, medicines might be sent to allay sickness and vomiting, whilst the inflammation of the strangulated gut might be making rapid progress towards mortification.

We will next suppose that the patient has duly attended to the duty prescribed to her of keeping her bowels regularly open; and that symptoms of strangulated hernia have nevertheless come on, and that she has informed the practitioner of the actual accession of the characteristic symptoms of the disease; what ought that person to do? He certainly ought in the first place to make an attempt to reduce it by common means, viz. by bleeding, by the use of the warm-bath, and the taxis. If it cannot be reduced in this way, it becomes at once a case for the operating surgeon. But gentlemen of this class are apt to start objections; for they are not fond of performing operations on pregnant women. They sometimes object on account of the mere possibility of there being adhesions, such as might be difficult to overcome. But difficulties of this kind are more imaginary than real.

After removing the stricture, surgeons usually open the sac and remove its contents, leaving the sac afterwards to occupy its former place. The late Dr. Monro proposed to remove the stricture and then to return the sac without opening it. Others, however, have reasonably objected to this procedure, on the ground that in the case supposed we should not know whether any part of the intestine might be mortified or not. This indeed is generally made an excuse for opening the sac, although no hesitation is ever made about returning it, whenever it is found practicable to effect the reduction, without an incision.

Another objection which has sometimes been made under these circumstances is, that the stricture may be situated at the mouth of the sac. If this is suspected or feared, a small opening might be made, one just sufficient to ascertain the point. But suppose the operating surgeon in such a case to make an appeal to the obstetric practitioner as to the alternative of delivering or not. What then should be considered the resources of the

latter gentleman in such a case? If we could lessen the size of the womb VERY SPEEDILY, we might possibly do some good. It would be as well at all events to ascertain the state of forwardness of the pregnancy by examination, and to deliberate on the degree of probability, that by rupturing the membranes and having recourse to the usual means for promoting the dilatation of the orifice of the uterus, we might be able to bring on labour soon enough to meet the urgent demands of such a case. But this is not often to be done by any sudden exertion. Nature in most cases would be found unprepared for the emergency. So that an injudicious attempt to accomplish an object, no doubt very desirable, might only be adding one mischief to another. Hence the possibility of a measure of this kind being required at such a juncture, should be remembered by the practitioner at an early period; inasmuch as it would be generally too late to rupture the membranes after the accession of urgent symptoms. With respect to the proper procedure to adopt with a view to the bringing on of delivery, that must in some respects depend on the circumstances of the case. If by endeavouring to dilate the mouth of the womb we should succeed in exciting that organ to parturient action, the child might very probably be expelled by the subsequent exertion of the natural powers without any additional means; and as at this period it would be comparatively small, no great effort might perhaps be required. But should such efforts be wanting, we must have recourse to artificial means, such as the use of a pair of long forceps, or of the hand, as an instrument of turning. The choice of these methods must depend upon circumstances; but if the mouth of the uterus be very rigid, the art of midwifery could furnish little or no resource.

The next subject which claims our attention is that of CALCULOUS AFFECTIONS, BOTH BILIARY AND URINARY.

OF BILIARY CALCULI.—The first consideration with respect to biliary concretions regards the distinction to be made between the pains produced by the passing of a calculus and those of labour. When a biliary calculus is passing, the seat of the pain is the scrobiculus cordis; whence it shoots back to the spine and shoulders.

The pains of labour usually begin at the loins, and thence pass forward towards the sides, and from the sides to the fore part of the abdomen. There is then generally an interval of rest for

fifteen or twenty minutes if the labour be incipient, or five or ten if more advanced. The pain of labour, as it advances still further, gets gradually stronger and the intervals shorter.

In passing gall-stones the pain sometimes remits; and it may be accompanied by much sickness and vomiting; which, however, we find sometimes to attend labour pains.

It has been asserted, when a biliary calculus is passing, that the pulse is remarkably retarded. There are however exceptions to this rule.

When a calculus gets into the ductus choledochus communis, jaundice is produced; and when it gets near the end of the duct, the pain is exceedingly severe, owing to its oblique termination in the duodenum and the contractions of the intestine. This has the effect of increasing the pain, and of leaving a sense of soreness of the part, after the calculus shall have passed into the duodenum. Soon after this transit shall have taken place, the bilious motions follow.

Some constitutions are so prone to the formation of biliary calculi, that we often find it impossible to prevent it. The treatment of this disease is therefore more simple than effectual. During the paroxysm, we should prescribe blue pill and opium; the latter in the dose of a grain and a half or two grains every four or five hours. Fomentations with flannels wrung out of hot water, may sometimes be made available for allaying irritation and mitigating the violence of the pain. But there are some of those cases in which scarcely anything operates as a palliative. There are others in which we find it impossible to promote their passage through the duct; which then may become ulcerated all the way from the gall-bladder to the duodenum. It would be well if we could always prevent these paroxysms during pregnancy; but we are frequently unable to foresee their accession. Mercurial and aloetic medicines, with soap and the mineral alkalies, have been severally recommended as prophylactics. The principle of preventing constipation both of the liver and the bowels, would certainly seem well calculated to meet the proposed indication; but we cannot deny that we meet with numerous examples of their failure.

OF URINARY CONCRETIONS.—The pelvis of the kidney is sometimes filled up with calculous matter; and when this is the case it is productive of great pain. Sometimes this pain is accompanied by much febrile excitement, and the disease receives the designa-



tion of nephritis; but the painful affection is sometimes unattended by fever, and is then called nephralgia. Our having to treat the former and not the latter of these, or the contrary, must therefore depend on the degree of fever, and pain, respectively accompanying them. If we have only pain, our remedies must be anodynes and soothing medicines and measures, as opiates, mucilaginous and demulcent drinks, the hip-bath, the warm-bath, fomentations, etc. etc. When there is also fever, active antiphlogistic treatment must be pursued; such as venesection, local bleeding, aperient medicines; but there here seems some room for choice. The purgatives should be cooling, and not those which are of a heating character. Saline purgatives are sometimes preferred, because they are supposed to pass in a great measure unchanged to the kidneys. Castor oil is also a mild aperient. Drastic extracts should be avoided.

The drink of nephritics should be mucilaginous and diluent. When a calculus shall have passed into either ureter, there will be pain in the corresponding loin, which will be felt descending lower and lower in the direction of the pelvis. This pain will be most severe when the calculus shall have arrived at the lower part of the ureter, where it enters obliquely into the bladder. There is therefore the same difficulty to overcome before an urinary calculus enters into the bladder, as before a biliary calculus enters into the duodenum. When about to enter into the bladder, the irritated muscular fibres of that organ contract upon the calculus very forcibly, which occasions the pain that is so acutely felt at this moment. Upon its entry into the bladder the pain suddenly ceases.

When however it shall have got into that viscus, the patient will become liable to the symptoms which stone in the bladder is generally known to produce. But the degree of the pain may depend in a great measure on the occupation of the patient. If that be sedentary, she may feel but little inconvenience from it; but if active, great irritation may be produced by it. She will be subject to occasional discharges of mucus, forcing pain, and bloody urine in small quantities.

Urinary calculi, after being received into the bladder, are known to grow sometimes very rapidly in magnitude. This fact being duly considered, and the above symptoms fully recognised, it would be the duty of the practitioner to propose an examination of the state of the bladder, with the sound. Whilst the sound

is passed into the bladder, a finger should be introduced into the vagina to ensure a correct judgment of the point to be ascertained. If there should be a stone found, a question would arise as to its probable effects in connexion with the pregnancy. Practitioners in surgery do not like to perform capital operations during gestation. But a case like this should make an exception, as the retention of the calculus might be attended with much irritation and distress during the remainder of the pregnancy, and possibly with fatal effects, during parturition. But as the urethra is very short and dilatable in the female, it might often be made to give way sufficiently for the expulsion or removal of the calculus without cutting, and even without the incomparably safer operation of lithotrity, which perhaps might be considered almost equally formidable by a pregnant woman. With respect to the employment of the blunt gorget to effect the dilatation required, few practitioners could be relied on for the exercise of sufficient patience to use it with safety. By using too much force, we might do irreparable mischief.

It has been proposed to pass a piece of intestine into the urethra. It must be made up at one end, and connected to a syringe at the other; so as to admit of being filled with a fluid after its proper introduction into the urethra. This contrivance is probably borrowed from the presumed effect of the membranes in dilating the mouth of the womb during labour. See Bloomfield's *Observations and Cases*, vol. ii.

Should the urethra not be disposed to dilate, it then might become a duty to consider whether an operation should be performed; and what that operation should be. Having seen the operation of lithotrity performed on several occasions by the Baron Heurteloup, the author feels himself compelled to recommend that operation in preference to every other. But the old operation of cutting is much more simple in the female than in the male. This consists in cutting into the urethra from the vagina, and dilating it laterally, the cutting instrument being conducted on a director; if this however be carried too wide, it may divide either partially or wholly one of the crura clitoridis. The plexus retiformis being vascular, some hemorrhage might probably attend the operation; but nothing of great consequence. The meatus being thus sufficiently divided and dilated, the forceps are to be introduced, and the stone extracted. All this may be done in good time, provided

the symptoms indicating the presence of calculus have not been mistaken or neglected. But suppose the discovery not to have been made until the labour shall have come on. Unless in that case something is done, the child's head will get crushed, or it perhaps might not be able to effect its passage through the pelvis at all. In a case thus circumstanced, what is to be done? There are two or three methods to be thought of; one is to be preferred to another according as the labour may be more or less advanced. Some practitioners might perhaps be disposed to wait a little to see whether nature might be competent to expel the child notwithstanding the impediment. Such an expectation being disappointed, there are others who would not scruple to open the child's head; and the author can easily conceive of cases where such a practice would be the only justifiable procedure. But if we happened to know of the complication during an early part of the labour, we might be able perhaps to raise the stone up, so as to allow the head of the child to descend into the pelvis so far, that room would be left for the calculus to fall again below it.

It was proposed by Dr. Smellie, in order to ensure the success of this method, to pass a sound into the bladder, guided by two fingers introduced into the vagina, for the purpose of raising the stone above the head, and supporting it in that situation until the head should be low enough to prevent its falling into the way; and then all the difficulty would be surmounted. But let us suppose that all this mischief might not have been found out till the head of the child was already engaged in the pelvic cavity. In such a case, it would be right to pause to consider what further should be done. The use of the forceps might suggest itself. It is indeed certain that with the forceps we might exert great force; but it is not less obvious that great force might produce great mischief. If we open the head, the pressure would of course be greatly lessened: but this advantage would be obtained at the expense of the child's life. But there is yet another mode of proceeding; and that is to make an incision from the vagina into the bladder, at that part where it is not covered by peritoneum. This is to be done by means of a curved bistouri, having an edge only to a short distance from the point. The cut should be made upon the stone; and of course it should be a clean cut, that it might heal the sooner.

Instead of discussing specially all the remaining complications



of diseased actions with pregnancy, the author will proceed to close the present article with references to some of the more important cases already recorded, observing that a more ample reference will be found in the pages of the 4to edition.

CASES OF PREGNANCY COMPLICATED WITH PROLAPSION OF THE VAGINA AND PROCIDENTIA OF THE UTERUS.—A woman thirty-two years of age, pregnant with her fourth child, was attacked at the full period of gestation with pains similar to those of labour. Her midwife intimated to her that her delivery was near at hand. Nevertheless three days elapsed, and still no delivery took place. On a sudden, however, a prodigious exertion of the parturient power was made; and in a moment the whole gravid uterus with its contents presented itself bodily on the outside of the vulva.

A consultation of physicians and surgeons was forthwith summoned; many questions were put to the patient and the midwife, but no sufficient explanation of so singular a case could be obtained. The midwife stated that the patient had strong pains for the entire period of three days; that during the latter part of the time they had indeed been exceedingly tempestuous: and that the intervals between them had rarely exceeded a quarter of an hour. She further stated that during the force of the pains the neck as well as the parietes of the uterus remained as flaccid as during the intervals between the pains; but that the womb sank more and more towards the inferior aperture, as it seemed to obey the impulse of each contraction. The uterus was in a state of inflammation. Its orifice was scarcely sufficiently dilated to admit of the introduction of the finger. The foetus, whose epidermis peeled off upon friction, appeared to have been dead about twenty-four or thirty hours. The placenta was attached to the posterior surface of the uterus, and seemed to have participated in its general inflammation. The woman died four hours after the accident. Communicated by M. Garin, a surgeon of Tournay, &c. *Corvisart's Journal*, tom. iv. p. 264.

There is recorded in the Medical Museum the case of a woman, who was the subject of a prolapsion of the womb for a year and nine months; but who while afflicted with that complaint nevertheless conceived. In the progress of the gestation the os tincæ and neck of the womb protruded out of the vagina, and was of large size, and much inflamed. Some ulcerations presented themselves about the orifice of the uterus, which discharged purulent matter. The treatment consisted in bleeding, in the use

of emollient fomentations, and in attempts to reduce the protruded viscus. The latter object could not, however, be accomplished without violence. But it would seem remarkable that what was thus in vain attempted to be effected by art took place spontaneously when the pains of labour supervened. The os tincae had the appearance and feel of a harsh indurated tissue, an effect no doubt of its long exposure to the air, and of the more or less constant vascular fulness and tendency to inflammation which had attended it. The amount of development of its orifice scarcely exceeded the diameter of a crown-piece after twelve hours of labour pains. At length, however, the membranes were ruptured, and the child's head came out enveloped by the parts which had before prolapsed. The body was forced out with some difficulty on account of a violently contracting and restrictive force which was opposed to it by the rigidity of the uterine orifice. Medical Museum, vol. i. no. 32, p. 227.

A female, in the beginning of her sixth month of gestation, being seized with pains similar to those of labour, sent for her midwife, who encouraged her to make the best of her opportunity by making strong bearing-down efforts. These produced a descent of the uterus towards the outlet of the pelvis, and an inversion of the vagina in the form of a considerable tumour, which appeared without the pudenda. After the use of fomentations, and subsequently of astringent lotions, the tumour was reduced, and the gestation proceeded and attained to its full period. Another case is mentioned by the same writer of an inversion of the interior tunic of the vagina during pregnancy. The subject was a female domestic, who had had a child at a former period. On lifting a heavy weight she became suddenly the subject of prolapsion and inversion of the vagina, attended by much inflammation and swelling. It is stated to have been successfully treated by the use of anodynes and astringents. Communicated by Dr. Maurice Hoffman. *Ephem. Germanic.* dec. ii. an. 10, p. 356.

CASES OF PREGNANCY COMPLICATED WITH SMALL-POX.—These cases are generally full of danger, although, as some of the following cases prove, a patient may occasionally recover.

A lady, who was in the fifth month of her pregnancy, became the subject of confluent small-pox, from which she recovered, and afterwards proceeded to the full period of her gestation. No marks of the distemper appeared on the child,

which had not been dead many days before the mother's delivery. The head however was dropsical, and could not be expelled by the pains until the water was discharged by perforation of the presenting part.

The following case of this dangerous complication was communicated to Dr. Smellie by Mr. Cook, a practitioner in Shropshire. A gentlewoman at Oswestry, aged twenty-eight, was in the seventh month of her pregnancy seized with confluent small-pox, accompanied by petechiæ, of which she recovered. In two months afterwards she was delivered of a dead child, upon whose body there were pustules which had the appearance of being at their crisis. Smellie's Cases in Midwifery, coll. 18, no. 7, cases 1 and 2.

Mary Gatton, of Prince's street, Westminster, was attacked with the small-pox in the seventh month of her pregnancy. The disease proved to be of the confluent kind, and was attended by a considerable fever. About eighteen days from the first attack of the eruptive fever, she was taken in labour, and delivered of a child, which had the appearance of having been dead five or six days. Its body was covered with confluent small-pox. The pustules were white, and full of matter; and from their size seemed to have nearly attained their maturity. Com. by Dr. Bland, physician to the Westminster Gen. Dispensary. Simons's Medic. Journ. vol. ii. p. 204.

On the subject of inoculation of pregnant women and of infants at the breast, we have remarks and cases by Dr. George Baker. "A healthy young woman was inoculated in the sixth month of her pregnancy. The pustules appeared at the usual time, and in moderate numbers; and nothing untoward happened until the evening of the fourth day from the eruption. She was then seized with symptoms of premature labour; and a sudden and violent labour following, she soon died convulsed."

The assertion of Dr. Mead, that if there be no miscarriage, the child will be free from the disease during his whole life, unless it happen to be born before the pustules are come to maturity, is refuted by the following fact:—Two women, who were pregnant, were inoculated, and had the small-pox very favourably, and afterwards brought forth their children in perfect health, and at the usual time. Both these children, after they had attained the age of three years, were inoculated with effect, and had a moderate eruption. Transact. of Coll. of Physicians, vol. ii.



p. 275. See in the same volume of the Transactions a paper containing an account of the success of inoculation in Jamaica, by Mr. John Quier, a practitioner of medicine in that island.

In illustration of the principle that pregnancy is no obstacle to inoculation for the small-pox, we have the following cases:—  
“A woman with child, who had been salivated since the commencement of her pregnancy, was brought to me, with others, to be inoculated. As is often the case, she knew not how far her pregnancy was advanced; but from the size of the abdomen, which was but small, I conjectured that she was not farther gone than the seventh month. On the day after the incision was made, she was brought to bed of a mature child. She suffered not the least from childbirth, and had only a very small number of pustules. This case only proves, that if a woman shall have been delivered of a child, and shall have proceeded for several days in her convalescence, before inoculation can be expected to produce any constitutional effect, she may not sustain any fatal, or even serious injury, from that process. But mark the consequence as to the child: “The child was inoculated on the eighth day of its age; and a very confluent kind of small-pox succeeded, of which it died.” “Another woman was inoculated, together with her child, about five weeks after her lying in. The mother having very little milk in her breasts, and another nurse not to be procured, I was apprehensive of the inefficacy of the preparation of the child, and ventured to give it half a grain of calomel twice. The disease was nevertheless extremely confluent, and it died. The mother had the disease very favourably.” *Medic. Transact. of the Roy. Coll. of Physicians*, vol. ii. p. 366.

Measles during pregnancy is attended with great danger to the mother, and therefore secondarily to the child. But the author knows not of one instance of that disease having been communicated by an infected mother to her child in utero. The same remark is equally applicable to scarlet fever and other constitutional diseases, accompanied by eruptive affections of the skin.

CASES OF PREGNANCY COMPLICATED WITH HERNIAL PROTRUSIONS OF THE INTESTINES.—1. A case of ventral hernia which manifested itself when the subject had gone five months in her pregnancy. It was treated by the application of adhesive plasters and a broad girdle with four buckles to it. This piece of mechanism answered every purpose; and the patient was deli-

vered at the full period of gestation without accident. Since that time the same lady has borne two children; always observing to wear her bandage tighter when she was not with child, and to relax it in proportion to her increase of size when she was. Perfect's Cases in Midwifery, vol. ii. p. 38, case 73.

A case of inguinal hernia during pregnancy. This intestinal protrusion had existed and was very manageable before pregnancy; but during gestation it became more and more troublesome, and was so tender that the patient was not able any longer to bear the pressure of a truss. The intestinal tumour came down below the labia pudendi. The parts were red and much inflamed; when labour declared itself, the tumour made great resistance to the touch, and on the accession of every fresh pain, it was described as being so full as to appear ready to burst. The patient was hot and restless, complained of great thirst, and had a very strong pulse. The pains were at first slight and transitory, but accompanied by a discharge of mucus from the vagina and os tinæ. As the patient was at the full period of gestation, there was no doubt of her symptoms being truly premonitory of labour. Venesection was practised to the amount of six ounces of blood, and followed up by the exhibition of saline draughts with moderate doses of the Thebaic tincture, and fomentations made with decoctions of demulcent herbs. The os tinæ dilated remarkably slowly. By precautions thus taken, the rupture was rendered less troublesome; for although the pains had increased in force, no additional uneasiness was complained of as far as the seat of the local affection was concerned, and the child was born by the unassisted efforts of nature. Almost immediately after the patient's delivery the tumour entirely subsided. During her convalescence she was again obliged to have recourse to a truss, which in her next, as in her preceding pregnancy, she was obliged for the same reason to lay aside. In her labour with her second child, the os tinæ dilated in a fourth part of the time which it had occupied in the first. The hernia was supported by the hand of an assistant during every pain, and no inconvenience whatever was sustained by the patient from this procedure. After her second labour she recovered much more satisfactorily than she had done after her first, and was able to go whole weeks together without the least use of her truss. Since her last confinement she has been so little subject to this complaint as to have no occasion to wear a truss at all. *Idem*, vol. ii. case 75, p. 44.

4. A case of ventral hernia complicated with pregnancy in a subject who was deformed as to some parts of her person, although her pelvis was not so small as to render the birth of a living child at the full period of gestation impossible. *Idem*, vol. ii. p. 47.

Cases of inguinal hernia during pregnancy are given by Smellie. A patient was much afflicted with a rupture in the left groin during the whole of her uterine gestation. Although she could reduce the hernia, it was forced down by every pain, and gave her great uneasiness. When the labour was pretty far advanced, an attempt was made upon the cessation of the pain to reduce it by pressure made upon the part with the fingers; the patient in the mean time being directed to lie on the left side, with her thigh retracted; a position which favoured the keeping up of the intestine, and prevented the anguish which accompanied and retarded the labour. The patient was thus safely delivered. When she recovered after her confinement she was recommended the use of a truss, by which her disorder was mitigated. *Smellie's Cases*, vol. ii. coll. 11, no. 2, c. 1, p. 148, edit. 1754.

Dr. Smellie attended a patient who after a former labour was afflicted with an exomphalos, which disappeared in the eighth month of uterine gestation, but returned after delivery. The same writer quotes a case of intestino-perineal hernia complicated with pregnancy. This hernia continued down during the whole time of the patient's first labour, upon which an inflammation and strangulation of the intestine ensued, so that it could not be reduced as usual. But as the patient had a great discharge of blood after her delivery, and the parts were fomented with discutient fomentations, followed up by the application of emollient cataplasms, the stricture was at length overcome and the hernia was reduced. In her subsequent labour, the intestine was forced down by the pains, which had also pushed down the membranes with the waters, so as to have produced a considerable development of the external orifice. The hernia was, however, reduced by opening still further the external orifice, introducing the hand into the vagina, and pushing the intestine above the os sacrum. By this operation the membranes were broken, the waters were discharged, and the head being thus forced down into the pelvis, had the effect of keeping up the intestine. The patient was therefore safely delivered without being subjected to the same risk that she had before incurred. *Idem*, case 5, p. 145. The immediately succeeding case is an example of the same displace-



ment ; and is rendered especially interesting from the incident of its rupture during the obstetric management of a labour which it complicated. "Next morning," observes Dr. Smellie, "I accompanied Mr. Tomkins to the place, and found the patient in great agony. The part was livid, and all round the edge of the swelling of a fiery red colour. She lay on her side, and when she turned on her back for the convenience of examining the tumour, it broke in the middle where the skin was thin and where there was a small fluctuation underneath. From a small opening which thus resulted, there issued about a spoonful of pus mixed with blood, which was quickly followed by the discharge of a thin fluid of a greyish colour to the quantity of about half a pint. This rupture no sooner happened than the patient exclaimed that the intestine had gone up, and that she was perfectly free from pain, which the moment before had been exceedingly violent. We were very much alarmed at what had happened ; because this fluid, which still continued to flow in a small quantity, appeared to be a part of the contents of the ileum, some portion of which we concluded must be mortified. The patient being of a constipated habit, the colon was emptied by a glyster. A pledget was applied to the aperture, and for sustenance, soup made of lean mutton or beef was prescribed. The patient recovered contrary to our expectation, went on to her full time, was delivered by Mr. Tomkins, and some months after her delivery called upon me, when I found the hernia had kept up and the part appeared firm, although a little ichor continued to ooze through the small orifice just mentioned ; so that I imagined the inflamed intestine had adhered to the neighbouring viscera after the mortified slough had been cast off. She was frequently troubled with violent pains, and a sense of great weakness on that side of the abdomen ; as if the intestine had become narrow and contracted, so as to hinder the easy passage of the ingesta. In about five months after this cure the rupture reappeared, in consequence of the patient overstraining herself at the wash-tub ; she being pregnant at the time. It was several times reduced by one of my pupils, by whom she was likewise safely delivered." Smellie's Cases, vol. ii. coll. 11, no. 2, case 5, p. 146.

FOR CERTAIN OCCASIONAL OR VERY RARE EXAMPLES OF MORBID SYMPTOMS OCCURRING DURING PREGNANCY, the reader is referred to the 4to edition.

OF DRIBBLING OF THE WATERS.—The escape in dribbling quan-

tities of an aqueous fluid, similar to the liquor amnii, for many weeks or months before the accession of labour, is, in most cases, a dangerous and often a fatal affection of the pregnant state.

Dr. D. B. Scharf, in a communication to the editors of the Nuremberg and Leipsic Miscellanies, gives an example of an accompaniment of pregnancy of this kind, and states that he had no hopes of a favourable termination to so untoward a gestation. He however was induced to prescribe certain medicines, which caused an abatement of the discharge, although it did not entirely cease till the full period of the pregnancy, when a fine healthy child was born. *Ephem. German. dec. ii. an. 2, p. 250.*

“A woman of eight-and-twenty years of age was seized in the fourth month of her pregnancy with a discharge of very clear lymph from the vagina, so that she voided of this transparent fluid about two pounds daily. On the third day after the accession of this flux she was attacked with fever, in consequence of which it sustained a slight diminution, but was not suppressed. The fever was repressed by bleeding and the use of cinchona bark. The flux of lymph however continued during the whole of her pregnancy; but during the latter months only in the quantity of about half a pound daily. About the eighth month the patient fell into a violent passion, which was followed by the accession of labour-pains, and she was delivered of a healthy living child soon afterwards.” *Comment. de Reb. in Scient. Nat. et Med. vol. iii. p. 648. Lipsiæ, 1754.*

It seems probable that, in many of the cases of what has been technically called DRIBBLING OF THE WATERS, the membranes of the ovum have been their source. We know that it is a peculiar function of the amnion to secrete the fluid which takes its name from it. Whether the chorion may also not sometimes take upon itself the same office, the author knows of no sufficient evidence to enable him to decide. But if we do not assume it, we shall find it very difficult to account for such profuse discharges of colourless fluids as have sometimes been reported to have occurred during pregnancy, and where afterwards it has been proved, as in Dr. Alexander's case, that the amnion has sustained no solution of continuity. Analogy would lead us to suspect the existence of what might be called a dropsy of the chorion; it now being well known that the amnion is liable to a morbid secretion, which has already received the designation of dropsy of the amnion.

OF DROPSY OF THE AMNION.—It has been an accepted doctrine for many years, that the uterus sometimes becomes the reservoir of prodigious quantities of an aqueous fluid during pregnancy. Madame N., aged forty, received a sudden fright, in consequence of which she sustained a loss of blood from the uterus. In a short time afterwards she felt that a tumour had formed in the inferior part of the abdomen. She felt moreover a pendulousness of the uterus, which she attributed to a new conception; and her abdomen acquired a considerable volume. M. Desmarais was first consulted when she supposed herself in the fifth month of her gestation; although she was then as large as a woman at the full period of gestation. M. Desmarais could not distinctly feel the fundus of the uterus. The use of remedies was attended with little or no advantage; the case being suspected to be one of ascites, the operation of paracentesis was performed. Four pounds of a limpid water was withdrawn in the first instance, and by a little further management, a GREAT QUANTITY more of the same fluid escaped, accompanied by more than the usual quantity of blood. The patient became so weak that it was found necessary to withdraw the canula without delay, although the size of the abdomen was not reduced more than one-third: the patient was however sensibly relieved by the operation. In about fifteen days she had regained her former size: but, for reasons given in the history of the case, the operation was not repeated. On the twenty-first day after the puncture, labour pains came on; the membranes were ruptured; the waters were discharged in great abundance, and the woman was delivered of a child no larger than one of five months' gestation. In a few minutes afterwards a second bag of membranes presented, and a second child was born no larger than the first; and the waters which followed, added to those already discharged, amounted to about forty pounds. Desmarais was of opinion, that all the waters represented as productive of the extraordinary size of the patient in this case were certainly contained in the uterus; and that the puncture which he made into the abdomen had reached the cavity of the uterus. Com. by M. Desmarais, *Recueil Périodique de la Société de Santé*, tom. vi. p. 357.

Another case of dropsy of the amnion, to which was given, as was the practice at the period of its date, the designation of



dropsy of the uterus, is found described, only with much unnecessary amplification, as follows:—

Jane P., twenty-eight years of age, in the fourth month of her pregnancy, fell violently, and received a severe stroke upon the epigastrium, in an attempt to jump over a ditch. On the day following, severe pains were felt in the abdomen, and a large ecchymosis appeared at the part bruised. Eight leeches were applied to it. In the course of six weeks the abdomen swelled excessively, and the patient became ill, lost her appetite, and failed in her digestion. At about the sixth month of her gestation, the dropsy fully manifested itself, and the pregnancy was doubted: but in a very short time from this period the patient became the subject of severe pains in the loins and abdomen, accompanied by a sense of great weakness, frequent vomitings, difficult micturition, intense fever, acute pain in the right thigh, and great vigilance. M. Davilliers was consulted at this period of the case, and found the abdomen distended with an immense quantity of fluid, which he further discovered was contained within the cavity of the uterus. There was moreover at the time a little dilatation of the orifice of the womb, and the labour commencing, he could distinctly recognise the head of the child as the presenting part. The pains were yet however inconsiderable. On the following day, the 18th of October, the patient's situation was somewhat improved: on the 22nd, the orifice of the uterus was more dilated: on the 23rd, M. Davilliers punctured the membranes, WHICH WERE VERY THICK. Immediately the chamber was inundated with water: large pans and other vessels were filled with it; "and the greatest ascites," the writer observes, "could not have produced a more abundant quantity." The child presented by the head; the practitioner searched for the feet, and felt another foetus. Com. by M. Davilliers. *Journ. Gén. de Méd. etc.*, tom. lxii. p. 252. See a case, probably of the same disease, in the *Ephem. Germ.* dec. ii. an. 3, p. 527. The reader will find additional cases in the 4to edition.

OF SEROTINE AND OTHER ANOMALOUS UTERINE GESTATIONS.—Under this head, cases are almost innumerably recorded of foetal bodies retained within the uterus for long periods of time subsequently to the lapse of the natural duration of pregnancy. An unmarried female having become impregnated thoro furtivo, the uterus daily increased in size. The child was felt, from time to

time, to move briskly in the womb, until within four or five weeks of the usual period of gestation. At that time the motions of the foetus altogether ceased ; and the uterus subsided into a tumour of three fingers' breadth round the navel, but without occasioning any pain which could prove an impediment to the usual occupations of the young woman in her capacity as a servant. From that time, however, a fetid sanies, like putrid catamenial discharge, distilled from the genital passage. During the continuance of this discharge, the patient was much harassed with headache, thirst, and febrile heats. After the lapse, however, of seven weeks, these symptoms subsided, and she seemed to have perfectly recovered. In about two years afterwards she was lawfully married ; and, after living with her husband two years, she was regularly delivered of a female child, perfect in all its parts, and well formed, without experiencing, either during her nine months' gestation, or during her delivery, the least pain or inconvenience from the tumour just described. In two years afterwards she became pregnant again, and in due time she brought forth a son ; and, as in the other case, without any pain from the tumour : the child, however, died in three days after its birth. In about eleven years after this period, the tumour began to be troublesome, and to give the woman pain. At length a fetid smell was perceived to issue from the patient's body ; and a small aperture was formed, distant about a finger's breadth from the navel, where a portion of the sacral termination of a foetal spine presented itself. Through this ulcer, and another which soon afterwards succeeded to it, and like the former furnishing a fetid ichor, small bones, which had been there enclosed, were carefully brought away in portions from day to day. In the mean time, the poor woman was observed to sink rapidly in flesh and strength ; and one day, whilst the dressings were being changed, some of the food, which she had taken in the evening of the day before, was observed to be escaping through the wound. She survived in that state about a fortnight, when she died, at eleven o'clock in the forenoon of a hot day, in the month of August. On the same day, at three o'clock in the afternoon, a post-mortem examination was carefully performed. The uterus presented a remarkable aperture through its anterior and left lateral walling ; and, within its cavity, several bones of fingers connected together at their joints were found lodged. The colon was similarly perforated ; so that its

contents were allowed to escape undigested before death. Ephem. Germanic. dec. iii. an. 4. p. 184.

The older obstetric writings abound with cases of retention of the head in the uterus after the patient had undergone the misery incident to the wrenching of the body from it by violent pulling. In the greater number of such histories, the exceptions being very rare indeed, the event has been represented as speedily fatal.

Consult the following references on this subject: Lowthorp's Abridgement of the Transact. of Royal Society, vol. iii. p. 224. Reid and Gray's Abridgement of the Transact. of Royal Society, vol. vii. p. 212. For a list of upwards of a hundred serotine gestations, see an Essay on that subject by Dr. Henry Gahn, published at Upsal in 1770. The manual and instrumental management proper to be adopted in such cases will come more properly under consideration when we shall have to treat of instrumental labours. See also a case of ossified uterus containing a foetus, which also was ossified, in a widow of sixty years of age,—com. by Dr. John Caldwell, of Preland, Londonderry; Edinb. Med. and Surg. Journ. vol. ii. p. 22. 1806.

OF HERNIA OF THE GRAVID UTERUS.—Hernia of the uterus, under any circumstances, is among the most rare malpositions of that organ. But of the small number of such cases which we find recorded, we meet with several examples of hernia of the GRAVID UTERUS. Of these the author, in the present edition, must be content with quoting only one, which, in addition to unquestionable authenticity, is possessed of peculiar interest. :—

The subject of the case was a poor woman of Hosterkiob, a village near Hirschholm. At a period of her gestation not stated, she became the subject of a large tumour, which presented itself at the right groin, and occupied a great space on the anterior and interior part of the corresponding thigh, and reached even to the knee. It was of a roundish form, covered with common integument, elastic to the touch, presenting a manifest fluctuation, but was not painful. The poor woman, who had already had four children, expressed her assurance that she had felt, in this tumour, motions like those of a living child; and this was confirmed by M. Sager's testimony of his having himself distinguished, through the integuments, the form of a foetus. After consulting Dr. J. S. Saxtorph, by letter, M. Sager was induced to send his patient to be under the immediate care of that gentleman.



She was admitted into the lying-in hospital, under the direction of Dr. Saxtorph, when the tumour had acquired about the size of a uterus at seven months' gestation. "But," observes Dr. Saxtorph, "I could not feel the motions of the child within it: I only recognised a fluctuation, which indeed was evident enough. In making examination per vaginam, I found the orifice of the uterus as it generally is in women who have had many children; but I could not distinguish at its neck any body bearing upon it. These observations were confirmed by M. Bang, junior, and by Mad. Frost, the head midwife of the hospital.

In examining with more care the origin of the tumour at the groin, I found that it commenced near Poupart's ligament, in such a manner however that it did not pass under this ligament, but was rather adherent to it. By placing the hand on the neighbourhood of its origin, and also above and below it, and by compressing the integuments as much as possible, one could not ascertain that any, or any part, of the abdominal viscera, with the exception of the uterus itself, had been pushed into the tumour." The patient was admitted into the hospital on the 24th of August, when she was considered as having pains premonitory of the speedy accession of labour. The case was seen by many physicians and surgeons, and by several pupils of the hospital, of whom the greater number came to the conclusion that the swelling at the groin was not the effect of any malposition of the uterus; but that it was a case of an encysted tumour, and that it contained no foetus. Inasmuch as the pregnancy was very doubtful, and the rules of the hospital not permitting the reception into it of any person not actually in labour, it became necessary to transfer the patient from the lying-in hospital whither she was first sent, to the civil hospital, to be under the care of Professor Thal.

On the following day that learned professor reported that he had himself seen on the preceding evening the movements in the tumour as originally described by M. Sager, and that he did not at all doubt that they were occasioned by the presence of a child. On the 13th of September the poor woman was again examined by Dr. Saxtorph, when the tumour was increased in size; but her functions generally were moderately well performed. "On the 1st of October," proceeds that gentleman's account, "M. Thal informed me, that on the preceding night an aqueous fluid,

which was inodorous, had escaped in abundance from the vagina, without being preceded, accompanied, or followed, by any pain. The size of the tumour had sensibly diminished, and the feeling of tension which had previously attended it was much diminished. I was not able by means of the taxis to recognise any positive change in the state of the orifice of the uterus. But in examining the external surface of the tumour, I fancied I could distinguish a resisting substance similar to the body of a foetus. Having several times put my hands cold upon its surface, it afforded me no spontaneous movements; Dr. Thal, however, reported to me, that M. Hahn, first surgeon to the naval legion, had distinctly perceived such movements on visiting the patient some hours before."

"On the 2nd of October the patient was taken with acute pains in the tumour. These pains were intermittent, and accompanied by efforts such as are usually incident to the function of parturition. The tumour exhibited contractions similar to those of which the fundus of the parturient uterus is the seat: it was now determined to send the patient back again to the lying-in hospital. That object having been effected, the midwife examined the vaginal part of the uterus, and found its orifice dilated to the extent of an inch and a half. The vertex of the foetal head was felt soon afterwards to present, accompanied by a prolapsion of the umbilical cord. The pains continued with much force and regularity; but the labour did not advance in proportion to their intensity. The waters escaped not in greater quantity than on the night before: the vagina was however sufficiently lubricated with the usual mucus tinged with blood.

"I saw the patient again in the forenoon, accompanied by Professors Fenger, Thal, and Bang. The dilatation of the neck of the womb was greater. The head of the foetus filled a greater space WITHIN THE BRIM OF THE PELVIS. The integuments of the head began to tumefy, and a larger portion of the umbilical cord had descended into the vagina. After the lapse of some hours the pains became less urgent. Nevertheless the head of the child had advanced further within the brim of the pelvis, and was presenting in a good position. It was however far from clearing the os uteri, which still remained insufficiently dilated. At five o'clock the pains were vigorous; the head was advancing, but very tediously; but the dilatation of the uterine orifice was

still going on, and at eight o'clock in the evening it was quite obliterated.

“The head of the foetus had now engaged in the pelvic cavity, and the violence of the contractions pushed it by degrees towards the inferior aperture. I now remained with the patient, attended by Drs. Fenger, Thal, and Bang, together with Messrs. Wallich, Lynge, and Sass, pupils of the hospital; and the patient was delivered at nine o'clock the same evening, by the unassisted efforts of nature, of a still-born female child, which weighed five pounds and a half, and of which the length measured eighteen inches. After the birth of the child, the tumour, of which it had formed the greater part, diminished in bulk. It no longer descended so very low as it had done, and it could be easily lifted up towards the abdomen. After having waited in vain three-quarters of an hour for the spontaneous expulsion of the placenta, I decided on the propriety of carrying my hand into the uterus, in order to finish that part of the labour, the patient being a good deal exhausted. No hæmorrhage took place. The tumour, which I well recognised as being the uterus, preserved very nearly the same size and shape as it immediately acquired after the birth of the child. I then surrounded the abdomen with a broad bandage, by the aid of which I supported the tumour in such a manner as to prevent its falling on the patient's thighs.

“The sequel of the case was very prosperous. Some gastric symptoms, which presented themselves two days after the patient's delivery, yielded promptly to the action of an emetic and of digestive remedies. Her strength was re-established; and on the 23rd of October, being twenty days after her delivery, the poor woman was completely restored to health, and returned to her home in a hackney-coach. A great part of the uterus remained extra-ventrally situated, and formed a hernia complicated with the presence of some sort of cyst charged with fluid, which could be easily distinguished by the touch. We could now, more distinctly than before the delivery, ascertain the fact that the uterus had not got out of the abdomen by any natural opening, and that on the contrary, it had passed between some fibres of the abdominal muscles.” Abridged from a transcript of the original communication as published in the Transactions of the Royal Society of Medicine of Copenhagen, for 1817. *Nouveau Journal de Médecine*, etc. etc. tom. v. p. 193.



## CHAPTER XII.

## OF EXTRA-UTERINE GESTATIONS.

It is the general opinion that John Riolan, commonly in English references called Riolanus, in his *Anthropography* published in 1650, was the first writer who reported a case of extra-uterine gestation. It was a foetation of one of the Fallopian tubes which he had occasion to witness in the person of one of the laundresses to Queen Anne of Austria. The body was inspected in the presence of Peter Seguin, First Physician to her Majesty.

The fact of an extra-uterine pregnancy had however been seen and recorded, although perhaps not recognised as such, as early as the year 1581. In the sequel of an article of feeble criticism on a case of mismanaged rupture of the uterus, or of an extra-uterine foetation cyst, according to the reporter's opinion, we are referred to a case which may be presumed to have been a gestation of this kind, spontaneously relieved by an abscess in the left hypochondrium. The case is given as an extract from a number of the *Silesian Chronicle*, dated 1581, and is stated to have been written by Polinus. "A woman who had borne ten children during a fifteen years' marriage, conceived again; and at the full period of her gestation, was delivered through an abscess in the left hypochondrium; whence a well-grown infant was extracted, which was baptized, and afterwards survived a year and a half. The mother, however, was reported to have died in great agonies on the third day after the delivery." Com. by Mr. J. Younge. Jones' *Abridgment of the Transact. of the Roy. Society*, vol. v. p. 306. It is probable indeed that the above mere newspaper account obtained no credit at the time of its publication: for we find that even Riolan's case was not believed which occurred many years afterwards; and the sceptical Guy Patin, who was an enemy to all novelties, asserted publicly that Riolan had attested the case in order to please the Queen of Austria's first physician.

There are enumerated the following varieties of extra-uterine gestations, viz. ovarian, Fallopian tube, and ventral or abdominal

gestations. The phrase EXTRA-UTERINE CONCEPTION, frequently used by writers on these subjects, cannot be properly applied, excepting to the ovarian variety of the gestations here supposed ; for whatever afterwards may become of the ovum, it must obviously be presumed that its conception must have taken place in the subject organ of conception, THE OVARY.

OF OVARIAN GESTATION.—This form of gestation would naturally result when the vesicle has been impregnated in its natural situation without having been detached by the Fallopian tube from the gland. The first example of recognised ovarian gestation was observed in the year 1682, by a physician of Perigord, named St. Maurice. See *Bibl. Anat. Manget. tom. i. p. 523*. For the second, we are indebted to a physician of Lambesc, in Provence, named Montagnier. See *Vieussens de Structura et Usu Uteri et Placentæ*. In these two cases, the curious fact was observed that a foetus of about two months' growth had fallen into the cavity of the abdomen ; the ovarium in each case having a rupture at its most depending part. The *Memoirs of the Academy of Sciences* for the years 1701, 1743, and 1759, furnish cases of the same kind, detailed with more precision ; and in all of them the foetus was developed sufficiently for its principal parts to be distinctly seen, while yet remaining within its ruptured calyx in the ovarium.

OF FALLOPIAN-TUBE GESTATIONS.—It has been already stated, that the first recognised case of extra-uterine pregnancy was one of Fallopian-tube gestation ; and it being the variety which is met with incomparably most frequently, it is probable that many cases of this form of conception had taken place before an example had been known of either of the other varieties. The theory of the fact, as well as of the frequency of Fallopian-tube gestations, is very obvious, and is founded on the accepted doctrine that the ovum is conceived in the ovarium, and that from the ovarium it is safely delivered into its natural duct—the Fallopian tube, and by it transmitted into the uterus. That portion of the tube which has first to receive the embryo is of ample capacity, and bounded by so great an extent of protecting margin in actual adherence to its corresponding ovary, and everywhere investing the germinating calyx on the body of that organ, that the escape of the ovum from the said calyx must be identified with its reception into the Fallopian tube. But that tube is naturally so extremely small, that the passing of a hog's

bristle into it and through it, is often attended with no little difficulty. It is however known to be capable, in its healthy state, of much development, so as to be competent to furnish for the embryo a safe passage from its corresponding ovary into the uterus.

All that has been now described is of course well and safely done, when this beautiful apparatus is in a sound and healthy condition: but what might we not infer were we to suppose an unhealthy state either of function or structure of so important an organ? We know that opposite surfaces of living tissues, when brought into close contact in states of inflammation, are apt to become mutually adherent. Now the proximity of the interior surfaces of the Fallopian tubes is such, that a state of inflammation of them must always expose them to the risk of becoming mutually adherent, that is, in other words, of having their passages blocked up, and rendered impervious. Now, should this happen, after the reception of the embryo into the pavilion of the tube, and before it shall have effected the whole of its transit into the uterus, it is manifest that the ovum must be arrested on its route. Retrocession towards the ovarium, or ejection into the abdominal cavity, must be considered nearly equally out of the question. Attaching itself to the parietes of the tube by the absorbent vessels of the chorion, it there becomes developed, and in proportion as it acquires an enlargement of volume, becomes the cause of a daily increasing development of the Fallopian tube, by which are produced the several phenomena incidental to this form of gestation.

OF ABDOMINAL GESTATIONS.—True ventral foetation takes place when the fecundated ovum, instead of being conducted into the uterus by means of the Fallopian tube, is found precipitated into the cavity of the abdomen, and is there developed; or, in other words, when from not being retained in the grasp of the fimbriæ, it has dropped into the abdominal cavity. In this case the womb, the ovary, and the Fallopian tubes, may be in a healthy state, and the placenta becomes attached to the intestines, to the mesentery, to the stomach, or to any part covered with peritoneum.

This phenomenon, which affords to physiologists much matter for reflection, is scarcely to be doubted as to the fact; although there are but few cases which can be quoted as unequivocal examples of it. Courtial's case of Thoulouse, noticed in the 4to edition, was, in all probability, an



example of ventral pregnancy. Massuet's language cannot be readily mistaken. "It lay with its head downwards, contiguous to the lumbar vertebræ of the spine, and occupied three-fourths of the abdomen in length; the feet being situated under the stomach and colon, whilst the rest of the body was covered with omentum. The umbilical cord was round the neck; and the whole of the body had escaped out of the membranes. It was a male foetus, well formed, and at its full period of gestation. THE PLACENTA WAS ADHERING TO THE LOWER PART OF THE STOMACH, TO A PORTION OF THE COLON, AND TO THE GASTRO-EPIPLÔIC VESSELS. THE WHOLE EXTERNAL SURFACE OF THE UTERUS, AS WELL AS ITS INTERIOR, WERE QUITE WHOLE, AS WERE ALSO THE TUBES AND THE OVARIA. Dr. Bayle, and several other medical gentlemen, were witnesses of the facts now described." But Sachs's case, described in the *Leipsic Miscellanies* as early as 1670, observ. ex. p. 224, was also given, without any theory to support it, as an instance of abdominal pregnancy; as were likewise two cases reported by Dionis; of which one had occurred in 1681, and the other in 1696. Dionis's *Anatomy*, pp. 292 and 339.

OF EXTRA-UTERINE GESTATION OF UNCERTAIN LOCALITY.—On perusing the published records of cases of this class, it will be found that they have occurred more numerously than those of any of the preceding, with the exception of Fallopian-tube gestations. This has arisen principally from two causes; viz. first from the want of ability on the part of the earlier reporters of such cases accurately to ascertain their localities and attachments; and, secondly, at later periods, from want of opportunities to examine the parts concerned, by reason of the eventual recovery of a large proportion of women who had been well-ascertained subjects of extra-uterine conceptions. From the excess of Fallopian-tube gestations over every other variety of extra-uterine pregnancies, it is obvious that a great number of those cases which we are happily under the necessity of placing under our present class, might be considered as principally the consequences of early rupture of cysts of these tubes. This induction would appear to admit of confirmation by a perusal of several of the recorded cases.

In the first edition of this work, the author has referred to and adduced about ninety cases of extra-uterine gestation, the details of which, however, would be far too lengthened for the limits of the present work. The following analysis, however,

contains a numerical statement of the leading facts drawn from a careful perusal of them as reported in that work. See 4th edition, pp. 918 to 949, inclusive.

The proportions of the several forms of extra-uterine gestations in that list are as follows: viz., of ovarian, sixteen; of Fallopian-tube gestations, about forty; of ventral pregnancies, eight or nine, and of gestations, assumed or proved to have been extra-uterine, but of uncertain locality, about three or four and twenty.

All the examples of ovarian gestation terminated fatally, and the greater number at an early period. One had arrived at the fourth month, and another, that of Forresterier, at the sixth or seventh month of gestation.

Of about forty cases of Fallopian-tube pregnancies, four proved fatal to the mother between the seventh and the tenth week of gestation, six between the third and sixth months. One of six months terminated in the mother's recovery, partly perhaps by the good management of M. Littre: of two cases at seven months' gestation, one proved fatal at seven months, whilst the subject of the other survived for eight years: one case proved fatal at eight or nine months: one proved fatal to the mother when she had carried the ovum for eleven months: one in the eighteenth month: one of two years' gestation, after which the mother recovered and survived: three of three years' gestation, which then proved fatal to the mother: one of between six and seven years' gestation, which then proved fatal to the mother: one of survival of the mother for eight years, after the ovum had ceased to manifest any signs of life; and one of survival of the mother for fourteen and another for seventeen years, under similar circumstances. Dr. Wagstaffe's case, published in 1831, which was one of Fallopian-tube gestation, ended fatally in the seventh or eighth week of gestation. Of the remainder, amounting nearly to a moiety of the entire number, the results were not known at the time when they were first reported, or were not sought by careful post-mortem examinations. The subjects of about one-fourth of the whole number survived the full period of natural gestation.

All the cases of ventral gestation, which are not numerous, and of the existence of which as a special variety of extra-uterine pregnancy, some writers have expressed great doubts, have, without a single exception, terminated fatally within the period

of natural gestation, and the greater number within the earlier weeks.

Amongst the results of cases under our last division of extra-uterine conception, viz. that of uncertain locality, we have happily many examples of recovery after years of various affliction from the presence of extra-uterine cysts within the peritoneal cavity.

Of twenty-four cases which the author has met with in his reading, the greater number of subjects survived the period of natural gestation. The following are briefly the facts of those cases as reported by their respective historians:—

1. Recovery of the mother after nine years' gestation by the escape of an extra-uterine foetus by an abscess which pointed in the neighbourhood of the navel.
2. Recovery after a twin extra-uterine gestation, for there were two extra-uterine cysts, and enjoyment of health for seven years subsequently to the cessation of life in the foetal subjects.
3. Death after four years of extra-uterine gestation. The fatal event was supposed to have been hastened by riding a rough-trotting horse.
4. A case of extra-uterine pregnancy of forty-three years' duration.
5. A similar case, after twenty-eight years' gestation. The celebrated case of Thoulouse was one of twenty-seven years' gestation.
6. Two extra-uterine gestations, conceived at different dates by the same woman. The narrative of this case is extremely interesting. *Edinburgh Medical Essays*, vol. v. p. 362. *Edin.* 1752.
7. A case of survival for fourteen years.
8. A case of uterine gestation, which supervened on an extra-uterine pregnancy.
9. One of twenty-nine months' gestation. It eventually terminated in the recovery of the mother by a gradual extrusion of the foetal bones without the assistance of art.
10. A case which proved fatal at the full period of gestation. It occurred in the practice of Drs. Crawford and Kelly.
11. A fatal case, perhaps originally of uterine gestation, but rendered extra-uterine by rupture of the womb. *Com.* by Mr. William Hey, of Leeds. *Medic. Obs. and Enq.* vol. iii. p. 341.
12. One survival for about six years.
13. A case of recovery. The foetal bones were removed by the rectum by means of a pair of lithotomy forceps; but the bones of the head being too large, they were broken to pieces before any attempts were made to effect their extraction.
14. An American case, somewhat loosely reported. *New York Medic. Rep.* vol. vii. p. 221.
15. A case of which the final event was



unknown when its history was drawn up, inasmuch as the process of expelling the foetal bones by ulceration by way of the rectum was not then completed. 16. A fatal case in the ninth month of gestation. 17. A case of recovery by the extraction of the foetal bones, which were of the size of those of a foetus of six months' gestation. 18. A case unaccompanied by any intelligible account. 19. A case of several years' extra-uterine gestation, the subject of it in the mean time giving birth successively to three living children. 20. A case which terminated fatally without deriving any benefit from the interference of art. 21. Another of which the event was successful, IN CONSEQUENCE, as was believed, of a beneficial interference of art. 22. A case of which the issue was unknown when it was first reported, and when the patient was represented to be doing pretty well: several of the foetal bones remained to be expelled. 23. A case of an almost sudden death in about the fourth month of a double gestation, of which one was uterine and the other extra-uterine. 24. A fatal case, of which the facts are rendered difficult to understand by the prolixity of their detail. The ovum was nearly at the full period of its development.

## CHAPTER XIII.

## OF PARTURITION.

ON the consummation of the actions of gestation, pregnancy is followed by the process of parturition. The power employed by nature for the expulsion of the ovum, at whatever period it may be called into action, is essentially and principally an attribute of the womb itself, assisted, however, by the co-operation of certain muscles of the chest and abdomen. This expellent action of the uterus is capable of being exerted at any period of gestation, and is probably to be identified with the expellent contractions which the same organ employs to rid itself of morbid formations or deposits, of whatever kind, which it may adventitiously contain. In natural gestation this power is ordinarily called into exertion after the lapse of forty weeks subsequently to the date of conception; whilst its advent, at that period, would appear to depend upon the entire accomplishment of the developments of gravidity. For important purposes in the economy of the human female the expellent contractions of the uterus are ordinarily more or less painful; whilst the efforts required to effect the expulsion of a well-grown foetus at the full period of gestation are so considerable as to have been abstractedly denominated LABOUR.

The incidents of parturition are so numerous, and the modes required for its management so different in different cases, that teachers of the art of midwifery have found it convenient to distribute its phenomena under separate heads, which they have designated CLASSES OF LABOURS. Such distributions, however, have not been always equally remarkable for their simplicity and utility.

The classification of labours to be adopted in the present work, is that which the author has for many years used in his public lectures; and by which the entire subject of parturition is distributed into NATURAL, PRETERNATURAL, COMPLEX, AND INSTRUMENTAL LABOURS.

The two first classes are partly founded on the presentation of the foetus at birth: all the labours under the first requiring

the head to be the presenting part; and all under the second requiring other parts of the child to present at the commencement of labour.

The third class is that of complex labours. It obtains its designation from the fact of its cases being complicated by accessional circumstances calculated to embarrass the function of parturition, and to compromise its results; as, for example, by hæmorrhage, convulsions, prolapsion of the umbilical cord, ruptures of the uterus, or of other tissues of the mother, etc.

The fourth class is that of instrumental labours, and includes all labours requiring the use of obstetric instruments for their completion.

OF NATURAL LABOUR.—Natural labour is an example of the process of child-birth in which the head of the fœtus must present, and nature shall be found competent to effect her intention without the assistance of art, and without compromising the life either of the mother or child. To these elements of what the author considers an adequate definition of natural labour, Dr. Denman adds the necessity of the labour being accomplished within the period of twenty-four hours. To this addition there is the obvious objection, that we constantly meet with labours which in every other respect might be considered natural, but which require more than twenty-four hours for their safe and prosperous accomplishment.

Labour is usually preceded by certain indications of its approach, technically called premonitory symptoms; which are, the occurrence of pains resembling those of labour at uncertain periods, but generally during the night: a perceptible diminution of the previous tension of the abdomen; a subsidence of the uterine tumour; and the accession of a cheerful state of spirits.

Diminution of the volume of the uterine tumour is probably the result of incipient contraction of the fundus and body of the womb, favoured no doubt by a contemporaneous relaxation of its neck and orifice. Of this actual reduction in the size of the uterus, the more proximate effect should be a perceptible diminution of the previous tension of the abdomen. The uterus is felt to occupy a lower position in the abdominal cavity than it had at any antecedent date, and the more protuberant part of the abdomen is observed even visibly to have subsided. These several circumstances, together with the comparative freedom from a painful sense of distention and oppres-



sion which accompanies them, may be deemed an adequate explanation of the improved spirits which are said so frequently to precede the more positive commencement of the process of parturition. As the pregnancy ripens towards its consummation, the neck and orifice of the womb become more and more relaxed and developed; insomuch that the incipient pains of the actual process of labour may, in most cases, be identified with some amount of dilatation of the uterine aperture. In the greater number of cases, the plug of strong and very adhesive mucus, with which nature closes up the mouth of the womb during gestation, falls out and escapes amidst the relaxations and developments here spoken of: so that at a very early period, after the institution of the first pains, the practitioner upon examination encounters an incipient dilatation of the orifice of the womb.

All CONSIDERABLE contractions of the uterus are probably more or less painful; whether instituted for the purposes of parturition or not. Hence the contractions of this organ during labour are commonly enough called the pains of labour. By a succession of these painful contractions of the fundus and body of the womb, the presenting part of the child is forcibly impelled towards its orifice; its neck and orifice being in the meantime endowed with the more passive attributes of gradual relaxation and development, in response and due proportion to the action of the propellent powers thus made to bear upon them.

In all cases of natural labours the head of the child, as has been already stated, is the presenting part. But the head may present in any position, relatively to given parts of the parietes of the brim of the pelvis. In a great majority of cases we may observe that the occipito-vertical part of the foetal head corresponds at the commencement of labour with the anterior and left lateral portion of the superior aperture of the pelvis. With this position of the head, the foetal extremities might be expected to occupy the right lateral and lumbo-dorsal districts of the abdomen of the mother. This position of the foetal head has been made available by Baudelocque, and other French writers, as a basis for the distribution of the presenting part of the foetal head in natural labours into six different positions.

The position now described being by far the most frequent, they assume it as the first of their six positions. In their second, the occipito-vertical part of the foetal head is made to

correspond with the anterior and RIGHT lateral portion of the brim of the pelvis at the commencement of labour. In the third, the vertex, or more correctly the occipito-vertical portion of the head, is made to correspond with the symphysis of the pubes. This position may be presumed to be greatly favoured, if not essentially determined, by a cordiform shape of the superior aperture of the pelvis.

In these three first positions we may observe that the back of the child must have a general correspondence with the front of the abdomen, as it directly has when the head presents in the third position; and with the antero-lateral portions of the abdominal parietes, when it presents in the first and second. But in the remaining or three latter positions, the back of the child must have a general direction towards the back of the mother: seeing that in the fourth position we find the forehead of the child corresponding with the left antero-lateral portion of the brim of the pelvis, the occipito-vertical part of the head being then determined to the right sacro-iliac junction of the mother's pelvis; that in the fifth, the child's forehead bears the same relation to the left antero-lateral portion of the brim of the mother's pelvis; and that in the sixth and last, the forehead is found to correspond pretty exactly with the symphysis of the pubis. Of these, the first is the ordinary position at the commencement of labour. As the orifice of the uterus becomes more dilated, and the head descends towards the middle of the cavity of the pelvis, the small fontanelle may be felt gradually to depart from the neighbourhood of the left acetabulum, and to incline more and more forwards towards the opening of the arch of the pubis; with which it is found to correspond in most cases very accurately, when the head is about to make its escape through the outlet of the passage.

The reader will here of course observe the proper distinction to be made between the presentation and the position of the child when it is about to engage in the parturient passage. The presentation is the part of the foetus which is found to occupy the neck and orifice of the uterus and the brim of the pelvis first and foremost; whereas the position is the relation which the presenting part, be it the head or any other part of the child, has to given parts of the brim of the pelvis. At the commencement of the active process of labour, the orifice of the womb is usually found as high up as the brim of the pelvis, and situated at no

great distance from the promontory of the sacrum. At that period it might be difficult in many cases to ascertain its position. Its aperture, however, even then, could be ascertained to have acquired a rounded form instead of its previous transverse fissure.

In the further detail of the process of parturition, the several facts of the function will be noticed in connexion with the duties devolving upon the medical attendant.

OF THE DUTIES INCIDENT TO THE MANAGEMENT OF NATURAL LABOUR.—The greater number of these duties must be considered applicable to all forms of labour. The first to be mentioned, which is very rarely to be compromised, is to obey without delay the first summons to give our personal attendance when the patient is taken in labour. In all cases of an engagement to attend a patient in her confinement, a binding obligation to this effect is implied. The process of child-bearing, unlike most other natural functions, is subject in ALL CASES to a LIABILITY to unforeseen dangers. The greater number of these dangers can be avoided, greatly mitigated, or remedied, by the presence and skilful management of a well-informed obstetric practitioner. The patient, by engaging the assistance of her medical attendant, to whom she gives her confidence, places her life under his protection. She does all in her power to purchase for herself an assurance of immunity from all perils. HE is therefore morally bound to make good his part of the engagement. Many of the complications which endanger this process are incident to all its stages; whilst some, and here we may instance convulsions and hæmorrhage, may occur at its very commencement, or even before the perfect consummation of pregnancy. In consideration of these facts, the medical practitioner is bound to give his earliest possible attendance, after the patient's message is received by him. A conscientious discharge of this duty may often involve him in many works of supererogation, and at the same time of great inconvenience to himself, by reason of their interference with his other engagements. Nevertheless, he is first bound to perform the duty, and afterwards to meet the consequences in the best way he may be able. But in the midst of multifarious professional engagements a practitioner may find it impossible to give his attendance on a case of labour IMMEDIATELY on being sent for, or he might not be accessible for hours to the most urgent demand for his services. In cases of this description his family or friends at home should always be left in possession of a pre-



concerted arrangement with one or more of his professional friends, to supply his place until he might return, or to perform the entire duty of a substitute in the event of his protracted absence. We may not desert one patient, if actually in labour, in order to attend another, although the one might be poor and the other in wealthy circumstances: clashings of this kind should be foreseen and adequately provided for. Two or more patients, residing at short distances in the same towns or villages, may often be very sufficiently attended by only one practitioner. As the tendency of a double undertaking of this kind would be to compromise an essential duty, it should be considered as the safest practice to have always IN READINESS, on such occasions, the kindly services of a competent auxiliary.

2. After the practitioner shall have arrived at the patient's residence, a speedy arrangement should be made for his being introduced to her. On some occasions of this kind, the monthly nurse is found inconveniently tenacious of the chief command, in which however she is destined to be superseded by the practitioner. This unavoidable invasion of the nurse's assumed privileges may always be effected by an easy good-tempered firmness on the part of the medical attendant without the necessity of losing much time. The latter being sent for on purpose to attend the patient in her labour, must accordingly have an early opportunity of knowing that the process of child-birth has actually begun, of which the nurse must be supposed to be entirely ignorant; she not professing any knowledge of midwifery. The ceremony of introduction into the parturient room is now much less formal than it used to be in former times. All that is at present required of an obstetric practitioner, when about to be introduced, is to approach his patient with perfect gentleness and good manners.

After a few observations on the common topics of the health of the family, the state of the weather, etc., there can be no difficulty in referring to the period of commencement of the patient's labour pains. This will furnish an easy and an early opportunity of suggesting the necessity of obtaining a more accurate knowledge of the fact of labour being present by examination per vaginam of the state of the function, and whether the child might be favourably SITUATED, or, in the language of the parturient room, whether it might be in the RIGHT WAY FOR THE WORLD. When this opportunity is sought for

the first time, it is often afforded with great timidity and reluctance. The best considerations which the practitioner can suggest for an early compliance, will be, that it is indispensably necessary; that it may be of great importance it should be made available at an early period of the labour; that it is rarely attended with any sensible amount of pain or inconvenience to the patient; and that when once submitted to, it may not be necessary to repeat it, probably for some time.

The most convenient position for the patient to be placed in for the performance of this duty, is that which is usually adopted in this country for the general purposes of child-birth, viz. obliquely across the bed, on the patient's left side, with the knees considerably retracted.

The objects of examination per vaginam during labour, which is technically called *TAKING OR TRYING A PAIN*, is to ascertain the fact of labour; the kind of labour in regard to the presentation and position of the presenting part of the child; and the conditions of the several tissues forming the constituencies and boundaries of the parturient passage.

We have therefore to examine first, in order to ascertain the fact of the patient being really and truly in labour. There are three or four good rules by which this fact may be ascertained with almost absolute certainty.

The propellent contractions of the body and fundus of the uterus, when labour is instituted, have invariably the effect of speedily dislodging the mucous plug, which nature employs during gestation to close up the orifice of the uterus. In many cases indeed this body escapes during the preparatory changes which take place during the latter days of most gestations. So that when the more regular and active pains incident to the process are instituted, the numerous glands situated within the orifice of the womb are found to be furnishing an abundant secretion of a thick ropy mucus, which gives to the whole of the parturient passage the feel of being most amply lubricated. When this mucus therefore is very profuse, the practitioner may be well assured that the process of labour has actually commenced.

Another indication which may enable the medical attendant to come to the same conclusion, is the fact in such a case of a certain amount of development of the orifice of the uterus. The uterine aperture having acquired a circular form, its boundarier

mutually receding from its centre so as to leave an intermediate diameter of about an inch or more, may be depended upon as a second evidence of the actual presence of the process of labour. The presenting part of the ovum may often be reached and distinctly felt by the finger during the latter days of gestation, when yet labour as an active process may not have declared itself: but the author has never known dilatation of the uterine orifice take place to the extent just stated, excepting in cases of actually incipient labour.

A third evidence of the fact of labour may be obtained from the characteristic bearing-down pains incident to the process of parturition. During every effort of the womb to effect the expulsion of its contents, the presenting portion of the ovum is distinctly felt to be propelled downwards along the course of the parturient passage from the commencement to the termination of labour. This character of true labour is never to be recognised in cases of false alarms: but we may generally add to it the fact that the really parturient contractions of the womb are with few exceptions progressive both as to their frequency and efficiency. The first twinges are usually confined to the back, and are inconsiderable in their amount. In the progress of the labour they gradually extend to the front and lower parts of the abdomen, until at length they would appear to occupy the whole of the uterine system.

The pains of actual labour are moreover periodical. They occur at intervals, which, during the earlier hours of the function, are of longer; but which during its latter stages are of much shorter, duration. The pains incident to false alarms on the other hand are exceedingly irregular, generally most violent at their commencement, more moderate in the sequel, very uncertain as to their duration, and rarely if ever accompanied by any dilatation of the mouth of the womb, or by the presence of any considerable quantity of mucus to lubricate the parturient passage. Hence the use of the terms false and spurious, to distinguish the pains of false alarms; whereas the epithets, short, small, true, strong, regular, lingering, bearing, bearing-down, violent, vehement, and thundering, are usually employed to characterise the truly parturient contractions of the womb.

There are, moreover, certain epithets in popular use which are employed to distinguish some other varieties of the function of child-bearing, as it occurs in ordinary practice; as, for example,



quick, slow, protracted, dry, wet, sleepy, sick, hard, laborious, &c. Quick labours are obviously those which are rapid in their progress, and soon over; whilst the slow, protracted, and the lingering, are those which are slow and tedious in their progress, and which occupy an unusually long period of time in their duration. Wet and dry labours are distinctions founded on the fact of the process being accompanied by the presence of much, or of a sparing quantity of mucus, or by the presence or absence of a dribbling of the liquor amnii. The epithet sleepy is applied to labour in some cases metaphorically, to signify its want of activity or slow progress; but perhaps most frequently to express literally the disposition of the patient to fall into a deep sleep during the intervals between her pains.

We examine secondly with a view to ascertain the state of the orifice of the uterus, as an indication of the probable duration, incidents, and results of labour. For example, if after a labour shall have existed many hours, the orifice of the uterus should be found only very moderately dilated, it might generally be presumed that many hours more would be required to complete the process. Experience warrants the same inference when the mouth of the womb continues rigid and hard to the feel for an unusually long time.

The lips of the womb are sometimes very THICK and hard for many hours, which should be considered as upon the whole an unfavourable condition: whilst in other cases it is found thick, soft, and more succulent; and therefore indicative of a kindlier disposition of the parts, and a speedier termination of the labour. On some occasions we find the boundaries of the uterine aperture remarkably THIN, so thin as to be scarcely distinguishable from the membranes of the ovum. In these cases we generally calculate upon an early consummation of the process. A wet labour, from the presence of an abundance of mucus, is usually a quick one; but if the moisture is the result of a dribbling of the waters, it is more than probable that it might prove tedious. The orifice of the womb during the incipiency of its dilatation is usually felt to be as high as the brim, and even higher in some cases than the brim, of the pelvis. Unless this part therefore be distinctly reached by the examining finger, it is obvious that nothing very certain or positive can be predicated about it.

Next to the orifice of the womb, the vagina should be made the object of a careful examination. This passage is found in

many cases greatly elongated at the full period of gestation: and in first labours, especially when these occur somewhat late in life, it often develops exceedingly slowly in its transverse diameters. When the head of the child passes very slowly through the orifice of the womb, its progress is usually equally slow through the entire course of the vagina; although we meet with occasional exceptions to this rule.

Having ascertained the conditions of the several soft parts forming the parietes of the parturient passage, it is a duty in all cases during our attendance on first labours to ascertain, with more or less accuracy, the several dimensions of the pelvis. It may often happen that an advanced stage of the labour may obviate the necessity of being very precise in the performance of this duty. Let it be supposed, for example, that the foetal head shall have got deeply into the cavity of the pelvis, before the practitioner has the opportunity of making his first examination. At that period of the first stage of the labour, it is obvious that he could have no motive for taking any admeasurement of the diameter of the BRIM of the pelvis; for we must suppose that the head of the child would then have cleared the superior aperture.

If again we suppose the perineal tumour formed, or rapidly forming; in that case there could be no motive for instituting any admeasurement of the OUTLET of the pelvis, inasmuch as any sensible protrusion of the perineum might be considered as a good evidence of a sufficiency of space at the inferior aperture. Again, there could be no occasion to be particular in the admeasurement of any part of the pelvis of a female who might be known to have given birth to one or more well-grown children; unless indeed there might be reason to apprehend that subsequently she had been the subject of some disease or fracture by which the dimensions of her pelvis might have sustained reduction. Moreover, in all ordinary cases, where the general appearance of the subject is found to present no visible defect of size or symmetry, it is rarely the practice to seek an opportunity of ascertaining the dimensions of the pelvis until we are called upon to attend the patient in her FIRST confinement. Want of adequate space may then be discovered for the first time as affecting the brim of the pelvis. This may at any time consist with a general figure, which might easily pass for one apparently of good proportions. But if the foetal head is found not to engage in the pelvis after somewhat more than an average

duration of propellent contractions of the womb, its orifice in the mean time being extensively developed ; it would become in such case a matter of propriety, and even of necessity, to institute a careful examination of the dimensions of the brim of the pelvis. The author has long made up his mind that the hand is the best pelvimeter. In the case supposed, therefore, he would advise the admeasurement of the pelvis to be made by that instrument alone, as directed in page 26 of the present work.

Another object of examination *per vaginam* is to ascertain the KIND OF LABOUR in regard to the presentation, and also to the position of the presenting part in reference to the parietes of the pelvis. In natural labour it has already been seen that we have assumed the head of the child to be the presenting part. But the fact of the head being the presenting part should be duly ascertained. At the full period of gestation it would seem difficult to conceive how the head should be mistaken for any other part. The author, however, has often known presentations of other parts mistaken for that of the head.

The head is to be distinguished without much difficulty by the extent of its osseous rotundity ; by such inequalities of the presenting part as can only be furnished by fontanelles and sutures, which are characteristic of certain tracts of the foetal head ; and by the practitioner being able, in most cases, WITH A LITTLE MANAGEMENT AND PAINS-TAKING, to reach one ear of the child. To make out the fact of a head presentation is, as the author believes, always practicable. The principal cause of difficulty is an accumulation occasionally of blood in the presenting part, producing a bulky protrusion of integument beyond the actual parietes of the skull. In order in this case to make out his diagnosis, the practitioner will have to carry his finger exteriorly to and BEYOND the circle of pressure occasioning the integumental protuberance ; where, in the event of the head being the presenting part, he would be able to distinguish the characteristic attributes of the foetal skull, viz., the co-existing osseousness and rotundity of the head exclusively. If we suppose that these characters of a presentation of the head could not be thus satisfactorily made out, a circumstance which the author cannot well conceive, it would be then necessary to pass the finger in a proper direction, and sufficiently high up, to feel one or both ears. This of course would be conclusive as to the presentation, and also with moderate attention to



accuracy in the examination, of the position of the presenting part.

Presentations of the shoulders and the breech are the only others which might possibly be confounded with that of the head. But to each of those parts some portion of the spine is contiguous and within the reach of the examining finger. These parts moreover may be easily distinguished THE ONE FROM THE OTHER by the parts of the child that are respectively contiguous to them; as by the proximity of the head in the one case, and by that of the genitals and sulcus between the nates in the other. The upper and lower extremities are to be respectively distinguished by the length of their digits and by the presence or absence of a heel. The knee and the elbow are to be distinguished by their different sizes, by the acuteness of the olecranon in the one case, by the roundness and extent of the knee in the other, and in each by the ready accessibleness of the hand or the foot, which in the greater number of cases might be easily ascertained. In one case of presentation of the breech of a male, the author found the foetal scrotum so prodigiously enlarged that it had been mistaken for a polypus having its origin from the interior of the neck of the uterus. Had the supposed adventitious tumour been removed by excision, the consequence would doubtless have proved fatal to the child, and very discreditable to the practitioner. No operation however could be reasonably suggested; inasmuch as the presenting part made rapid progress without any interposition of art: but the true diagnosis of the case was not satisfactorily made out until after the breech was born.

It has been stated that some cases of presentation of the face have been mistaken for breech cases. In cases of face presentation, the cheeks are apt to become greatly swelled from the accumulation of blood in them, so as then to furnish something of resemblance to the prominence and tenseness of the nates. In face cases, although much distorted, some of the features may in general be tolerably well ascertained. The nose, mouth, and eyes, are so remarkable and mutually related, as not easily to admit of being mistaken for any parts naturally appertaining to breech presentations. Moreover, within the aperture of the mouth, the finger could most assuredly distinguish the presence of gums, and possibly also that of the tongue and fauces.

The position of the head in natural labour may in most cases

be determined by the locality of the small fontanelle. In the three first positions the small fontanelle will be found easily accessible to the examining finger, and occupying a locality not remote from the parietes of the pelvis anteriorly. In the three last positions, the large fontanelle will be found to correspond with the axis or central part of the presentation. Of course the forehead would then be found to correspond with the front of the pelvis. If by reason of great accumulation and protrusion of integuments, there should be much difficulty in ascertaining the localities relatively to the parietes of the pelvis, either of the fontanelles or of any of the sutures, it might then become necessary that the practitioner should introduce his finger sufficiently high into the passage to ascertain the situation and direction of the ear. The boundary of the helix, and the sulcus between the helix and the head, are always directed towards the back of the child. This part of the examination could not well be dispensed with in cases requiring any deliberation as to the necessity of having recourse to the use of the forceps.

To ascertain the position of the child in breech presentations, there is little more to do than to ascertain accurately the situation, relatively to the parietes of the pelvis, of the presenting parts themselves. When the breech shall have made some little progress within the brim of the pelvis, the inferior or sacral part of the spine could be distinguished in such a manner as to leave little doubt of its identity. Suppose, then, that part to correspond with any of the anterior portions of the pelvis: the practitioner might of course reasonably conclude, that the face of the child was determined to the back of the mother, and consequently that the case might be expected to involve no great difficulty in its management.

On the other hand, should the genitals be found to correspond with the front of the pelvis, and the gluteal and sacral portions of the presenting part to abut against the sacrum of the mother, such a state of things would indicate an inconvenient position, a protracted labour, and a doubtful issue as to the life of the child.

In shoulder and arm presentations, the position of the child in the uterus may be ascertained, first, by making out the relative locality of the spine, some part of which no doubt could be reached by the examining finger; and secondly, by bringing down the corresponding hand. By this latter expedient the

direction of the palm of the hand, being in correspondence with that of the face and front surface of the child generally, would obviously become a means of determining the point required.

Labours are usually distributed into certain marked stages of the process. As the function, however, is continuous, and without suspension from the moment of its commencement, the distribution of these stages must be considered as entirely arbitrary; which indeed is further proved by the fact, that different writers have distinguished for their stages, different periods and incidents of the labour. The author is disposed to consider the distribution into stages of Dr. Denman, as simple and practical as any that has been proposed. The first stage, according to this distribution, is made to include all the incidents of a labour from the commencement of the process to the ordinary period of the rupturing of the membranes. Now, the period of rupture of the membranes must be assumed to take place AFTER a full development of the orifice of the uterus, and also AFTER the head of the child shall have entered pretty deeply into the cavity of the pelvis. When the liquor amnii escapes under these circumstances, the first stage of the labour is said to have terminated, and the second to have begun. The incidents of the second stage are the further development of the parturient passage, including the required extension of the perineum and the birth of the child; and the objects of the third stage are the expulsion or careful removal of the secundines. The duty incident to the management of the first stage is ordinarily little more than that of watching the progress of the labour. Examination during this period of the process is seldom required to be resorted to more than once. When the principal facts already enumerated shall have been once accurately ascertained, the further introduction of the finger will seldom be indicated, until the head shall have begun to make a bearing upon the perineum. In the author's practice, all violent extensions of the external orifice are considered unnecessary and improper, excepting in cases of very extraordinary rigidities of those parts. In the earlier periods of modern artificial midwifery, it was not an unfrequent practice to apply the same treatment of scooping, as it has been technically called, to the rigid orifice of the womb: but in the more judicious practice of the present day this procedure is happily almost altogether laid aside. In cases of more than ordinary rigidity of the parturient passage, the treatment



by efficient, and, if necessary, repeated bleeding, is much to be preferred to any violent or forcible manipulations. The practitioner may, in compliance with the prejudices even of weak or ignorant persons, find himself obliged sometimes to take a pain, as it is vulgarly expressed, when an examination per vaginam could in no way be expected to be of any essential service. In such a case his best policy might be to comply with the wishes of the party; but of course it should be in such a way as not to do mischief, nor in any way to compromise the safe and quiet interests of the labour.

When the head presents at the brim of the pelvis in the first position, i. e. with its small fontanelle directed to the left acetabulum, the vertex might be expected gradually to shift its position during its descent into the pelvic cavity from the acetabular region to the arch of the pubis, thus performing a change of position equal to about one-fifth or one-sixth of a circle. Should this gradual change not take place, the head would descend into the lower part of the pelvis in an inconvenient position, which would probably require to be rectified before it might be able to pass through the external orifice. A late eminent practitioner of this metropolis was in the habit of claiming for himself an unusual degree of dexterity in giving the required direction to the head, during its descent into the pelvis, by means exclusively of the finger, so as to ensure the eventual correspondence of the vertex with the arch of the pubis, and consequently its easy escape from the pelvic cavity. When it is considered that a malposition of this kind is upon the whole a rare occurrence, it would seem harsh and scarcely allowable to dispute the correctness of the representation here referred to. The author must, however, observe, that he has known cases in which HE could not, BY MEANS OF HIS FINGER ALONE, prevent the head from completing its descent in the inconvenient position here supposed. When any advantage can be secured by the attempt, there surely can be no objection to its being made. This duty, of questionable value, is, however, nearly the whole of the assistance that a practitioner can extend to his patient during the first stage of natural labour.

The second stage commences with the escape of the waters. The average quantity of liquor amnii might be stated at about two-thirds of a pint. The whole or greater part of this fluid usually escapes at once and suddenly. But no quantity

of it should be allowed to escape in such a way as to injure the bed, or even extensively to soil a single sheet; and this should be prevented by the application of soft absorbent napkins to the parts. Speedily after the escape of waters, according to Dr. Denman's distribution of the stages of natural labour, the head comes down into approximation with the outlet of the pelvis, so as gradually to cause pressure upon the perineum. In some cases of first labours this pressure requires to be continued for many hours, before any great impression is made upon the perineum; and this effect takes place so unequally in different cases, that it is often impossible to predict the time, with any tolerable correctness, when it may sufficiently yield to admit of the completion of the birth. If the propellent powers of the uterus should be unduly and prematurely exerted, and the foetal head be borne with a disproportionate force against the flooring of the pelvis, the perineum may thus be made to sustain a spontaneous laceration. Hence the protection of this important part becomes a duty of paramount attention in cases of unusually vigorous action of the parturient powers. The author believes that the accident of spontaneous rupture never takes place excepting under circumstances of want of due proportion between the propellent and the resisting powers. An accident therefore of this kind, viz. a perfectly spontaneous rupture of the perineum, never probably happens, excepting in a small proportion of rare and anomalous cases, in which we might fairly presume that nature does actually depart from her ORDINARY RULE OF PROCEDURE, THAT OF OBSERVING the safest and most cautious progressiveness in her efforts. If this fact be admitted, the proper assistance to be extended in such cases should be founded on the principle of counteracting the dangerous violence of the uterine throes, and of preventing the perineum from being exposed to the full amount of their impulse. This is to be done by opposing a firm and steady bearing to the head, when felt to be borne down too strongly against the perineum, and to be impelled by a *vis a tergo* disproportionate to our experience of the ordinary efforts of nature. In the performance of this duty, we accomplish our object most effectually, not by applying the palm of the hand to the perineal tumour, as erroneously directed by some writers; but more directly and dexterously, by opposing the whole of our modifying force by the application of the points of the fingers and thumb of

the right hand to the presenting part of the foetal head. The danger of rupture arises not from any extraordinary bulk of the head as is very often supposed, BUT GENERALLY, WITHOUT A DOUBT, from the suddenness and violence of the impulse which it makes against the perineum. The duty of protection, therefore, must obviously consist in opposing a moderate resisting force to the inordinate violence of the natural efforts; or, in other words, in compelling nature to observe those rules of caution and slow progressiveness on which she would seem to have founded her ordinary security.

In some few cases of unfavourable position of the foetal head or of irregular form of the pelvis, it might be necessary to apply the fingers of the left hand to the posterior part of the perineum and neighbourhood of the os coccygis; in order to guard against any sudden accident which otherwise might be there incurred. During the performance of this latter service it is scarcely necessary to intimate that a liberal use of napkins should be considered as indispensable.

After the head shall have been expelled, nature usually gives the patient a short respite from pain. Should any assistance be required during the next propellent effort of the uterus, its object generally should be to give a proper direction to the shoulders during their transit through the os externum. Of these, the shoulder already most inclined to the front of the pelvis should be made to occupy the arch of the pubis, whilst the other should be determined to the posterior fourchette.

The next pain might generally be expected to have the effect of disengaging both shoulders, and with very little assistance the whole of the superior extremities. The only assistance which could be allowed here, for none can be absolutely required, should be merely to pass up a finger into the bend of the elbow, in order, by the slightest traction, to bring down the hands; which should be brought down singly, the one after the other. This procedure might be expected in some degree to diminish the painful distention of the tissues forming the outlet of the passage, during the expulsion of the shoulders.

The shoulders and the whole of the superior extremities being disengaged, it most frequently happens that after one or more contractions of the uterus the birth is completed. But it is not very unfrequently the case that this effort is for a few minutes delayed. When this occurs the practitioner should not prema-



turally interfere; but rather allow nature to complete her work in her own way, and in her own best time. This cautious abstinence is supposed to leave the uterus better disposed, and more competent for a vigorous contraction, for the purpose of expelling the placenta. When thus the whole of the child is born, we identify that result with the completion of the second stage of the labour.

During the few minutes of further respite from pain which is then afforded, we have to congratulate the mother on the happiness of the event, to ascertain and report the sex of the child, to answer cheerfully the questions which may be addressed to us at this time as to any marks or other ascertainable blemishes on the body of the infant, to change the patient's napkins, and to prepare and encourage her for the trifling additional inconvenience which she has yet to sustain, and which she is frequently too much disposed to magnify.

After the entire expulsion of the child, the uterine contractions are usually suspended for about ten or twelve minutes. During this interval, the practitioner separates the infant from the mother by an intermediate section of the umbilical cord. In performing this duty he is careful to tie the cord firmly on each side of the section. Before however he proceeds to apply his ligatures he satisfies himself that the child's breathing is well established. The first ligature is to be applied at the distance of between two and three inches from the navel. This is of course intended to secure the child's circulation; and the material of the ligature should therefore be sufficiently strong to ensure that object, and sufficiently bulky not easily to make its way through the substance of the cord. The ligature should be drawn sufficiently tight to prevent all chance of a subsequent loss of blood from the foetal end of the cord. The reason for applying the ligature at the distance of two or three inches from the navel is simply that ample room might be left for the application of another ligature, in the event of any untoward removal of the first. The second ligature is usually applied at the distance of about two inches from the first. The use of the second ligature is to guard against the loss of blood from the placental end of the cord. The tying of both ligatures is to be completed before the intermediate section of the cord is to be effected. It being a fact that the circulation of the mother is not continuous with that of the foetus, it is of course to be inferred, that no

discharge of blood from the placental end of the bisected cord can have any part of the maternal circulation for its source. The practitioner therefore in ordinary cases ties that end of the cord merely to prevent any of the unappropriated blood, left in the umbilical vessels and in the placenta, from escaping, so as to injure the bed or to discomfort the patient. But in cases of twins, and other forms of plural births, there is a much stronger reason, or rather an indispensable necessity, for the application of two ligatures to the cord of the first-born child. This necessity is founded on the fact, that occasionally, in cases of duplicate or triplet gestations, the placental circulations of the several ova have been observed to intercommunicate. This fact is very well shown in Plate xxxi. of the Atlas, which represents the placental mass of a triplet gestation, where one considerable blood-vessel, A VEIN, is seen to stretch along at least two-thirds of the superior part of the drawing, so as distinctly to connect the trunk of the umbilical cord of the first placental mass with that of the third. The intercommunicating vessel ought to have been marked by a figure; but as it is the only vessel that is seen to take the course described, the reader will be at no loss to recognise it. The whole of the drawing gives a faithful idea of the principal vessels of the preparation from which it was taken. The preparation itself is to be seen in the obstetric department of the Museum of Anatomy of University College. Now, if we suppose the cord of the first-born of these triplets to have been bisected, and the placental portion of it not to have been secured, it is obvious that the third child, or that to which belonged the placental portion represented on the right-hand side of the drawing, must have been exposed to instant death by hemorrhage from the unsecured portion of the umbilical cord of the first child. The practice therefore of securing both portions of each umbilical cord, or of all in cases of more than duplicate gestations, is now become universal, and no doubt irreversibly established in this country.

But the umbilical cord may require more management than has yet been described. The navel-string is often observed to be coiled round the neck of the child. This may be supposed to happen in consequence of the vigorous movements of the child in utero, the cord in the mean time being sufficiently long to admit of such entanglement. There are two forms of this entanglement, which require to be managed somewhat differently. In

the former, the cord is only coiled round the child's neck *once*. If in this case it should happen to be long, the loop may be sufficiently enlarged to be set at liberty by being brought down over the head. If not long, on the other hand, this attempt would cause it to be put dangerously on the stretch; by which the uterus might be excited into spasmodic contraction, or the placenta prematurely separated from its attachment. This method of disentanglement should therefore be avoided, and substituted for one much simpler, and one not liable to either of these objections: it should be that of enlarging the loop investing the child's neck to a circle of merely sufficient diameter to admit of the shoulders being readily transmitted through it.

The second case is one in which the cord is supposed to be coiled round the child's neck more than once. It has occasionally been found so coiled three or four times; and there is no doubt that the child has thus been sometimes strangled. The mode of management in a case of this kind is to pass two ligatures, at a little distance from each other, under the more accessible part of the cord, and then, after quickly tying both, to effect the section between them so as to give the opportunity of uncoiling the strangulating portions as soon as possible. This operation will, of course, require to be completed afterwards, by tying the cord again in the usual manner, at the distance of two or three inches from the navel. The child, if actually living, will speedily exhibit the usual manifestations of life. If not, the ordinary resources of the resuscitative process, hereafter to be detailed, must be resorted to.

After having separated the child from the mother, the practitioner will next have to determine his attention to the removal of the placenta. This is the principal object of the third stage of labour, and is or should be performed by nature herself, in the greater number of cases; it being as much within her province to accomplish, as any part of either of the preceding stages. In the course of a few minutes after the expulsion of the child, the uterus accordingly contracts again pretty strongly; by which it effects the disruption of the connecting vascular tissue between itself and the placenta: in consequence of which, every part of the latter is effectually separated from its surface of previous attachment, and allowed to sink by its own weight from the body of the womb, which it had before occupied, into the vagina, or at least towards the neck of the uterus itself; to be thence



propelled by further uterine contractions, or to be withdrawn by the practitioner by very moderate traction applied to the umbilical cord. In offering this trifling assistance, which however could seldom be considered as a matter of imperative necessity, the medical attendant will often find it convenient to carry the fingers of his right hand along the cord as far as the placenta, which he will sometimes find detained by its bulk at or above the brim of the pelvis, and to press it into a form better adapted for being transmitted through the vagina. With the placenta are often brought away portions of coagulated blood, which had been accidentally effused, when the after-birth had been only recently or perhaps partially detached from the uterine surface. These loose coagula should be carefully removed, in common with all the accompaniments of the latter stage of the labour, in order to make good room for the application of two or three warm and dry napkins to the parts.

In withdrawing the placenta, it is usual for the practitioner to apply moderate pressure to the uterus by means of his left hand, whilst the right is employed in drawing down the cord. In some cases the left hand is made use of to draw down the cord; whilst the fingers of the right hand are employed to mechanise the descent of the placenta by applying pressure to one side of it, as already described. After the removal of the placenta and its accompaniments, the whole of the labour, including the third stage, is said to be terminated.

With some members of our profession, it is a pretty general practice, after the business of the parturition is over, to encircle the patient's waist with a broad belt or bandage, for the several presumed purposes of reducing the abdominal protuberance, and of giving tone and firmness to the relaxed parietes. Provided no undue pressure be thus applied, for the uterus and its appendages in common with all its contiguous surfaces must be considered as being not in a condition to sustain any great amount of pressure, there can be no great objection to this practice; at the same time that its utility must be very limited, if not indeed in many cases rather questionable. For some of the earlier years of his practice, the author was induced to conform to this custom as one which he found generally established. But for the last fifteen or twenty years he has very rarely had recourse to it; excepting in cases of threatened hæmorrhage, in the treatment of which its use is often of indispensable importance.

The management of the placenta as now described is merely intended to exhibit the practice to be adopted in ordinary cases. The treatment of cases of its retention will be given hereafter among the varieties of complex labours.

Hitherto the author has strictly confined himself to the consideration of natural labour under its most favourable circumstances. He has reserved its more tedious and perplexing forms for some further remarks, which he now proceeds to offer under several subordinate heads, to be especially devoted to the consideration of protracted labours.

OF LABOURS PROTRACTED BY RIGIDITIES OF THE SOFT PARTS.—This difficulty arises most frequently from patients becoming the subjects of the function of parturition, either precociously early, or at a comparatively late period of life. It seldom, however, occurs, in any great degree, until after the age of thirty. A merely slow dilatation of the orifice of the womb very rarely compromises the eventual safety of the case. Patience may perhaps be represented as the best natural remedy for this state of things; and the abstraction of blood, in a full quantity, as the most efficient measure of artificial treatment. Bleeding, however, is seldom ABSOLUTELY required, until after the orifice of the uterus shall have become completely developed, and the foetal head shall have commenced its descent into the vaginal passage. As a difficult labour advances, there are occasions when the contractions of the uterus become progressively less powerful and efficient, until they might be expected to cease almost altogether. But in the greater number of cases of this description, the head descends slowly into the pelvis, and quite clears the orifice of the womb before it becomes finally arrested; for it often is arrested in its progress towards the outlet, if nothing be done to quicken and to invigorate the action of the uterus. Under these circumstances the author considers the abstraction of blood, in a sufficient quantity to reduce the accompanying phlogosis of the case, a measure of indispensable importance, WITH A VIEW TO THE PRESERVATION OF THE LIFE OF THE CHILD. The child's life is thus ensured by shortening the duration of the labour; an object which full bleeding has in a very remarkable manner the effect of promoting.

The practice of large bleedings is very much employed in the United States of America, as a prophylactic measure, to ensure for the patient an easy labour. It was probably first suggested

with that view by the late Dr. Rush, in 1791, in his public lectures to the medical students of Philadelphia. See the Lond. Med. and Phys. Journ. vol. xx. p. 73. Dr. Dewees, Dr. Physic, and many other American practitioners of eminence, have since adopted the same principles, and greatly extended their application. In one very remarkable case of rigidity of the os uteri, accompanied by an additional contraction of the vagina in consequence of a former rupture of the perineum, Dr. Dewees took from his patient, by one operation, upwards of two quarts of blood! A healthy living child was soon after extracted by the forceps. "The parts readily yielded without laceration; the woman had a rapid recovery, and the child was living and well" when the case was published. New York Medical Repository, 1796, vol. ii. p. 22.

The author can see no good reason for bleeding prospectively, or in mere anticipation of a possibility, which might or might not be realised by the event. To say the least of such a practice, it would appear to be an unnecessary encroachment upon the ordinary dispositions of nature in the affairs of a function, which she usually performs very safely and satisfactorily without any such interference. Bleeding, on the other hand, as a remedy or a corrective of an actually existing rigidity of the soft parts, whether or not accompanied by more than ordinary constitutional excitement, is a power of great and unquestionable value; and we are indebted to our transatlantic brethren for much useful discussion of the subject, and more especially for pioneering us through a wilderness of prejudices into a just estimate of the extent to which, in certain imperious circumstances, it may be safely carried. In cases of protracted labours from rigidity of the soft parts, and accompanied by much suffering, and great excitement of the heart and arteries, the author has often directed the abstraction of between thirty and forty ounces of blood with the most marked advantage. He is indeed perfectly well convinced, that, in cases of tediousness and difficulty, from the causes here supposed, this important measure, well timed, well applied to its objects, and judiciously combined with other useful means which it would be improper to neglect, will not unfrequently have the effect of superseding the necessity of using instruments, when otherwise their employment would become indispensable. Moreover, free bleeding may be considered as a power well calculated to bring certain cases of difficulty from



extraordinary rigidity of the parts, within the reach of safe assistance by the forceps. Dr. Dewees's case, already quoted, is a striking example of its great importance and value in this point of view. The author could indeed refer to a variety of instances in his own practice, where it enabled him to apply the forceps with the most perfect success in all respects, many hours earlier than, without its adoption, it could have been safe even to make the attempt.

OF LABOURS RENDERED TEDIOUS BY THE CONTRACTIONS OF THE UTERUS BEING FEEBLE OR IRREGULAR.—Labours of this character are often sufficiently painful, and almost always exceedingly anxious. The proper treatment is to subdue the irritation, and to endeavour to improve the quality of the pains by the exhibition of moderate doses of opium. In the mean time the action of the bowels should not be allowed to become suspended. Attention should be paid to this function during the earliest stages of the labour, inasmuch as aperient medicines must be expected to produce very little effect, if exhibited after the descent of the head deeply into the pelvis.

INERTNESS OR DEFICIENT ACTIVITY of the uterus in a small but uncertain proportion of labours, has hitherto baffled all attempts to explain it on any known principles of the function. These cases are especially to be treated by the exhibition of ergoted rye. The proper dose is about half a drachm of the powder, or proportional quantities of the infusion and tincture, given every ten minutes till the required effect shall be produced; the patient of course being supposed to be in actual labour.

The ergot of rye seems to have been first recognised in France as a quickener of slow labours: for, a few years since it was very fully proved, by an ingenious author of that country, that so long ago as an early period of the last century, it was popularly esteemed a nostrum of potent efficacy in the town and neighbourhood of Lyons. See an able memoir on this subject by M. Desgranges, in the *Nouveau Journ. de Méd. Chirurg. Pharm.* etc. for January 1818, vol. i. p. 54. About two-and-twenty years ago, several American practitioners of character addressed the profession, in letters and other papers, strongly recommending the use of the ergot as a substance really possessing the power which empiricism had imputed to it. See the *New York Medical Repository*, vol. xi. p. 308, and vol. xii. p. 344. See also a Dissertation on the Natural History and Medicinal Effects

of the *Secale Cornutum*, or *Ergot*, by Oliver Prescott, M.A. New York, 1813. The ordinary mode of exhibiting this drug in America is to infuse a scruple of the powder in an ounce and a half of hot water, and to administer a tablespoonful of the infusion every ten minutes.

In James's Dictionary, under the word *Secale*, it is stated that the barbed rye has been long known in Germany as a remedy for the immoderate discharge of the lochia. Its intoxicating and poisonous properties have also been recorded for upwards of a century in that country. Vide *Ephem. Curios. Germanic. decad. iii. an. 3. obs. 133; necnon obs. 29. Dn. D. Johannis Christ. Bautzmanni de Secali temulente, decuria iii. an. 7, p. 52, 1699.* In further illustration of certain deleterious properties possessed by the ergot, the reader may also consult an extract from a Report of the *Société de Médecine* of Lyons, published in a pamphlet at Lyons in 1818. "The great quantity of ergoted rye," the Reporter states, "which poisoned the crops of 1816, exposed the inhabitants of the country to the danger of gangrenous ergotism. During many months, the wards of the *Hôtel Dieu* presented the deplorable spectacle of horrible mutilations produced by this gangrene; which put a termination to the most atrocious pains, only by effecting the entire separation of the affected limbs." See *Nouveau Journal de Médecine*, vol. ii. p. 244. For other bad effects of the ergot, see *Mémoires de la Société Royale de Médecine*, p. 303. Paris, 1779.

In consequence of some signal failures in the earlier periods of his trials of the use of the ergot in lingering labours, the author became a very tardy believer in its efficacy as a parturient medicine. At present, however, he entertains no doubt of its being possessed in this respect of considerable power.

OF PLETHORA AS A CAUSE OF PROTRACTED LABOUR.—This cause may be suspected to exist when a violent headach, not depending upon a morbid condition of the stomach, supervenes in a few hours after the commencement of the labour. In the event of the parturient process proving tedious under these circumstances, free bleeding has been observed to induce a speedy and most striking change in its character.

Great excitement of the heart and arteries, occasioned by the violence and long duration of a labour, may be considered as being identified in its effects on the progress of labour with

actual plethora. Abstraction of blood is accordingly its unquestionable remedy.

It has been asserted that labour has often been rendered tedious by certain passions of the mind. That protracted labours may have sometimes been accompanied by unhappy states of mind, there can be no doubt; but the author is not sure that he has ever met with a genuine example of a case of parturition rendered tedious and protracted by this cause alone. He considers therefore the dogma as in a great measure unfounded, and its general prevalence as the result of repeated but inconsiderate assertion.

OF TEDIOUSNESS OF LABOUR FROM OVER-DISTENTION OF THE UTERUS.—In these cases the womb may be supposed to be distended beyond the natural leverage of its contracting fibres, and therefore beyond its capacity for exerting its contractile and parturient powers most advantageously. When over-distended, whether by a plurality of children or by the presence of an extraordinary quantity of liquor amnii, or by any monstrosity or diseased condition of its contents, it accordingly seldom fails at the full period of gestation to become the subject of an unusually tedious labour. Should there arise under these circumstances a state of inordinate excitement of the heart and arteries, bleeding may often be resorted to with great advantage; whilst instrumental midwifery might be made available for the delivery of the first of twin children, both with good effect and very little inconvenience, either to the patient or the practitioner. This point will be further illustrated hereafter; when moreover we shall particularly notice the modes of management proper to be adopted in cases of tedious labours from defective capacity of the pelvis. Under another head of subject an opportunity will likewise be presented of noticing some analogous difficulties arising from malpositions of the foetal head within the pelvis.

For cases of labours protracted from the presence of tumours within the pelvis, enlargements, indurations, cicatrizations, etc. of any of the parts forming the maternal passage, consult the references and quotations in the 4th edition of the work, vol. ii. pp. 972—977 inclusive. It may be observed that the greater number of impediments to the function of parturition, occasioned by rigidities, cicatrizations, adhesions, and other diseased states of the soft parts, are well illustrated by Dr. Denman in his



Introduction to the Practice of Midwifery, under two or three articles. See Denman's Introduction, chap. x. sections 5, 7.

OF PROTRACTED LABOURS IMPUTED TO MALPOSITIONS OF THE UTERUS.—Some of the principal malpositions of the uterus have already been sufficiently considered under the diseases of pregnancy, and some others will be treated of hereafter, when we come to speak of certain varieties of complex labours. The only malposition of the gravid uterus which we have now to consider is its obliquity of position in the abdomen. This obliquity has been correctly defined to be a deviation of its longitudinal axis from the axis of the superior aperture of the pelvis in the latter months of pregnancy. The deviations from this its best and natural position differ in extent, from the slightest variation to that extreme degree, in which it is placed transversely with respect to the axis of the trunk of the body, its fundus being depressed as low or even lower than its cervix. Mauriceau mentions the case of a dwarf of the height of only two feet whose abdomen reached down to her knees.

When the obliquity of the uterus is slight, it is said to be incomplete: when on the other hand it is so great that a part of the os uteri rests upon some bone of the superior aperture, it is said to be complete. Obliquities of the uterus have been distributed into three principal varieties, viz. the anterior, which is not unfrequently met with, in a moderate degree, in women who have had many children; the posterior, which is very rare, and cannot even exist excepting in combination with a curvature of the spine in the same direction; and the two lateral obliquities, of which the right is incomparably the most frequent. Many causes of obliquity of the uterus have been enumerated by authors; as, e. g. preternatural adhesions of its neck and orifice to the sides or other parts of the tissues immediately investing the pelvis; distortions of the pelvis and of the spine; abdominal or pelvic tumours encroaching upon its natural locality; an unequal relaxation of its own ligaments; place of attachment of the placenta; and a supposed early determination given to it in the first months of pregnancy by its contiguous viscus, the rectum.

With respect to the influence of such forms and degrees of obliquities of the uterus as are commonly met with in the production of difficult labours, the sentiments of English practitioners are widely discordant with those of foreigners, and those of living practitioners of all countries, with the opinions of their prede-

cessors of the last century. Dr. William Hunter, *Anat. Descript. of the Grav. Uterus*, p. 11, has published the following statement, as containing his distinct opinion on the subject, founded on his own personal experience. "As far as I have been able to observe, the mere obliquity of the uterus never occasions so difficult a labour as to require any artificial management to bring the os uteri into a proper situation. In such cases, as in many others, art can do little good, AND PATIENCE WILL NEVER FAIL." On the same question Dr. Denman has maintained a very similar opinion. That writer has expressed himself as follows. "The position of the os uteri is seldom found exactly in correspondence with the centre of the superior aperture; it being in some cases projected on either side, and in others so far backwards that it cannot even be felt for many hours after the labour has begun. This oblique position of the os uteri, to what direction soever it may tend, has been considered not only as a frequent, but as the most general cause of difficult labours; and this doctrine, which was first promulgated by Deventer, was at one period taught and received in all the schools of midwifery in Europe." After some further remarks, chiefly on the exaggerated magnitude and frequency of this cause of difficult parturition, Dr. Denman concludes with a judicious acknowledgment that it might sometimes operate as a cause of procrastination, and that it is often combined with other causes of difficult labours, although singly it may not be of sufficient importance to be the cause of dangerously difficult ones: but that it may retard a labour, or accompany a difficult one; "it does not require any manual assistance, nor that we should retract it to a central position with respect to the cavity of the pelvis." Denman's *Introduction*, chap. x. sect. 3, art. 4.

Baudelocque gives an opinion not essentially discordant with the sentiments of the above eminent authorities:—"The obliquity of the uterus," that writer observes, "is in general of much less consequence than is commonly supposed. It would be discreditable to our art now to consider it, as Deventer did, as the most frequent cause of difficult and preternatural labours." The same author reports, however, a case of malposition of the orifice of the womb, the result of the obliquity under consideration, with the character and consequences of which the reader should be made acquainted. "A woman of the village of Grimberg, near Brussels, in labour of her first child, placed herself under the care of a midwife. This person kept the patient standing, and

urged her to bear down during her pains, for three days and two nights ; so that the child's head appeared at the vulva enveloped in the anterior part of the uterus, when M. Baväi was sent for. This portion of the uterus, as stated by that gentleman, COVERED THE HEAD LIKE A CAP AND WAS INFLAMED. Its orifice, which he was not able to distinguish without great difficulty, was dilated only to the extent of a sixpenny-piece. The waters had been drained away for some days." After much mismanagement of the case, according to the representation of M. Baudelocque, the patient died. On opening the body after death, the placenta was found attached to the womb in front. The pelvis was well formed and of ample magnitude. The orifice of the uterus was in apposition to the nape of the child's neck ; the head having been expelled enveloped by a portion of that viscus, which was gangrened and in a state of separation from the rest. "This case, in which I have in some measure preserved the expression of the author," proceeds M. Baudelocque, "presents in a clear and alarming manner, the melancholy effects of an obliquity of the uterus, in a case left totally unassisted, or rather committed to the management of the blindest ignorance and temerity." After describing another case of similar malposition of the uterus, he concludes his discussion of the subject by recommending the practice adopted by himself in the management of the second case. After placing the patient in the best position for the objects to be attained, that of lying on the back, "I raised the abdomen with one hand, to diminish the obliquity of the uterus ; while with two fingers of the other, after having pushed back the child's head very little, I was able to hook the anterior edge of the orifice of the uterus, to bring it towards the centre of the pelvis, where I kept it during a few pains ; and then permitting the woman to bear down with the little strength she had left, she was delivered in the space of a quarter of an hour." Baudelocque's Midwifery, Heath's translation, vol. i. p. 196.

Among many hundreds of procrastinated and difficult labours of various sorts which the author himself has attended, superintended, or been consulted in, he does not remember to have met with a single case of any considerable difficulty which he could fairly impute to obliquity of the uterus ALONE ; without being complicated, or accompanied, or even produced, by some concurrent or pre-existing occasional cause. Of M. Baväi's case he cannot help thinking, that from its commencement it



was one rather of presentation of the nape of the neck than of obliquity of the uterus.

OF DIFFICULT LABOUR FROM DEFECTIVE CAPACITY OF THE PELVIS.—The deficiency of capacity here supposed, must be presumed to be only very moderate, as our classification of labours requires that the more considerable distortions should be referred to our fourth and last class, viz. that of instrumental labours.

Cases of this description devolve upon the practitioner a very high degree of responsibility; inasmuch as they require, on his part, the exercise of a competent capacity to distinguish cases admitting of delay, accompanied however in the mean time by good management of the natural powers, from such as might speedily require the assistance of art.

The following might be recommended as useful general rules to enable the medical attendant to come to safe conclusions on these important points.

1. If an experienced practitioner cannot EASILY reach the promontory of the sacrum at an early period of the labour, he may generally conclude upon such an amplitude of the pelvis as should supersede the necessity of instrumental assistance.

2. No labour can be considered as dangerous from a pelvis of deficient size until after the liquor amnii shall have been discharged.

3. The natural powers may be generally more relied upon in moderately young subjects, than in persons more advanced in life, in otherwise equal circumstances.

4. Judicious management of the natural powers by timely, and in some cases by repeated, bleedings, may often be made available for superseding the necessity of using instruments.

5. First labours require more time, when in any degree obstructed by a pelvis of doubtful size, than subsequent labours.

6. Much protrusion of the integuments of the foetal head into the vagina, before any or a considerable part of the skull shall have engaged in the brim of the pelvis, may be assumed as indicative of too small a pelvis to admit of the labour being completed with certainty, and safety to the child, without the use of instruments.

7. Progressiveness in the descent of the head into and through the pelvis, should be considered as a moderately good indication of its being sufficiently ample in its dimensions to admit of an eventually safe and living birth. This rule however should not

be too absolutely depended upon. The author can call to his recollection one unhappy case, in which the labour occupied no more than EIGHTEEN HOURS; but which, although progressive throughout, proved fatal both to mother and child. The pelvis was scarcely of standard size; the patient having been previously delivered of a dead child by means of the forceps. The labour commenced with a sudden discharge of the waters. On this, the practitioner engaged to attend the lady in her confinement was immediately summoned to her assistance; and the call was promptly obeyed. On his arrival, the orifice of the uterus was already in a state of incipient dilatation. Such was the extraordinary activity of the labour, that a respite of three minutes from strong bearing pains was scarcely allowed, during the whole duration of the struggle. To subdue the unusual violence of the accompanying excitement of the heart and arteries, an ample bleeding was practised ONCE. About two hours before the termination of the labour, which at that time was become exceedingly tempestuous, the patient was seized with a severe rigor, which lasted about five-and-twenty minutes. Another bleeding was then proposed; but rejected in consultation. The child was still-born. The foetal head was greatly compressed; and the umbilical cord was of a greenish hue. The mother, subsequently to her delivery, complained of an intensely severe pain in her left iliac region; for which another bleeding was proposed on the evening of the same day; but was as before resisted, through the influence of an inexperienced medical practitioner, who subsequently proved to have been an intimately affianced relative of the poor sufferer. The victim of these untoward circumstances died on the ninth day after her delivery. The fever which accompanied the organic disease which eventually destroyed her, presented a strongly remittent, or rather an intermittent, type. On inspecting the hypogastrium after death, an abscess containing about two ounces of strongly concocted pus was found to occupy the left iliac region. Whether the ovary had sustained any mechanical injury during the labour, or whether it became the nucleus of the inflammation and suppuration which then commenced, from mere determination of the general excitement to that locality, cannot now be ascertained. So much disorganization of the part had taken place that no distinct remains of the left ovary and fallopian tube could be positively identified.

8. Impaction of the foetal head within the pelvis is a danger-

ous condition of a labour ; and one which should not be allowed to exist for any positive duration of time. Impaction is to be considered such a close wedging of the head within the pelvis, the *caput cuneatum* of Celsus, as not to admit of its being moved either upwards or downwards, by any safe effort of the practitioner. This is an extreme form of difficulty, which can scarcely ever be expected to be got over by any exertion of the natural powers. During the whole period of an impaction of the head within the pelvis, violence from pressure is sustained, continuously and without relief, by the same tracts of tissues. This subject will be further noticed when we come to treat of the use of instruments.

9. Simple arrest of the head within the pelvis may form a case of some difficulty ; but one, nevertheless, of very inferior importance to that of impaction. In cases of arrest, all that we usually discover in the first instance is, that the head makes little or no progress after it shall have arrived at a given stage of descent within the pelvic cavity. If in any degree smaller, or differently modified as to form, it might admit of being propelled very safely and happily through the inferior aperture. We accordingly know that nature in many cases possesses the means, although limited as to their extent, of effecting such a reduction of its bulk, or modification of its form, as may eventually suffice to bring it within the range of her power to expel it. Inasmuch therefore as in cases of mere arrest, the pressure sustained by the parts lining the pelvis is only felt during a few seconds at a time, the practitioner may often avail himself of any probable chances or changes, and considerable changes might reasonably be often expected to occur after the lapse of a few more hours, and trust to a happy issue. The foetal head being compressed only by the strong contractions of the uterus made to bear upon it from behind, it is obvious that time must be afforded for an adequate number of such contractions to be made, and to produce their proper effect. It is the especial duty of the practitioner to superintend and watch the safety of that process ; to sustain the efforts of nature by well-timed remedial measures, and to be prepared to give further assistance only in the event of ultimate failure of the natural powers. There will however be no danger of failure of those powers whilst the heart and arteries remain unexcited ; whilst the heat of the body continues nearly natural ; and whilst



a breathing moisture suffuses the skin. The tract of tissue exposed to the pressure of the head during every pain will be in no danger of sustaining any irreparable injury, provided each pain be immediately followed by a distinct recession of the head. Again, no serious injury is likely to succeed to a protracted struggle of the parturient function, provided the practitioner might find himself competent to carry his finger between the foetal head and the parietes of the pelvis during the entire progress of the labour, without causing much additional pain to the mother.

10. Tenderness and swelling of the parts, and especially of that portion of the vagina against which the head comes to impinge during each contraction of the uterus, should be considered as an indication for the practitioner's interference; either by further constitutional treatment as bleeding, the exhibition of opiates, purgatives, saline diaphoretics; or else by any required interposition of operative midwifery.

11. The integumental protuberance of the presenting part, which at an earlier period of the labour had been firm and tense, becoming subsequently soft and flabby, may usually be considered as furnishing a pretty strong evidence of the child having been already deprived of life. It is rendered more conclusive, if accompanied by a considerable foetor of the discharges.

The following is a brief list of references to cases of living births which followed painful and protracted labours, or which occurred under circumstances little calculated to sanction the anticipation of so favourable an issue. Perfect's Cases in Midwifery; vol. i. c. 44, p. 256; vol. ii. c. 90, p. 143, and c. 91, p. 146; vol. ii. c. 143, p. 439. Smellie's Cases in Midwifery, vol. ii. coll. 21, c. 1, 2, 3, 4; coll. 22, no. 2, c. 1 and 2. The second and third volumes of Smellie's Midwifery abound with excellent cases, which might be here very advantageously referred to in illustration of the facts and principles just submitted to the reader's consideration. See Giffard's Cases in Midwifery, case 150, p. 357. Mauriceau, tom. ii. obs. 14, p. 12, obs. 33, p. 29; tom. ii. Append. obs. 81, p. 43.

The author has great satisfaction in referring the reader whilst on this part of his subject to the excellent volumes of cases published within the last few years by his friend and colleague Dr. Ramsbotham. There is scarcely any department of practical midwifery which they do not admirably well illustrate. Dr.

Ramsbotham's contributions towards the improvement of this branch of the profession are indeed truly important, and should find a place in the obstetric section of every general practitioner's library in the kingdom.

OF PROTRACTED LABOURS FROM RIGIDITY OF THE MEMBRANES OF THE OVUM.—On ordinary occasions it is unquestionably the best practice, to allow the membranes to be ruptured spontaneously; and practical writers abound with cases rendered difficult and protracted from a too early escape of the waters: see at least half-a-dozen such cases quoted by Smellie in his second volume of *Cases in Midwifery*. Burton's *Midwifery*, obs. 32, p. 376. Mauriceau, tom. ii. obs. 42, p. 38. obs. 50, p. 44. obs. 60, p. 51. obs. 74, p. 62. See a very curious case of this kind, in p. 92, obs. 112. See also obs. 148, p. 117. obs. 312, p. 258. In this last case there was a real knot on the umbilical cord. An interesting case of tedious labour from the too early discharge of the water is reported by Dr. James Hamilton, *Select Cases in Midwifery*, 1795, p. 25.

In the event of the membranes being unusually dense and rigid, there can be no objection to their being ruptured in the manner recommended by Dr. Denman, that is, by the nail of the index finger, notched into a small saw, or in any other way which might be deemed more convenient by the practitioner.

PROTRACTED LABOURS FROM THE UMBILICAL CORD BEING COILED ROUND THE NECK OF THE CHILD.—It has pleased some writers to dispute the efficiency of this cause of protracted labour. The author is quite satisfied that he has repeatedly met with cases where the entanglement of the cord here supposed had the effect of protracting the completion of the labour, as well as of causing more directly the death of the child by strangulation. An experienced practitioner may often recognise this form of protracted labour, by observing that the foetal head is carried up to a very unusual distance into the vagina from the ultimate limit of its previous descent. For this perplexing accident it seems impossible to point out either a preventive or a remedy, which could be recommended equally for its safety and efficiency. The character of the latter part of the labour is such as to make it quite sure that the child might be born alive in the absence of the impediment opposed to its timely exclusion by the mechanical interference of the umbilical cord. This being the case, it would seem probable, that the

duration of such a labour might be shortened by means of the forceps: but, on the other hand, it would seem nearly equally probable, that the chance of strangulation of the child by the action of the umbilical cord might be greatly enhanced by forcible traction of the head with that instrument. Add to this, the danger of thus producing a premature separation of the placenta. The forceps, therefore, in such a case, should be made available, in the author's opinion, AS A LAST EXPEDIENT OF OUR ART, in the event of an ultimate failure of the natural powers.

Analogous to cases of this description, the reader may consult in the 4to edition, p. 983, a case of protracted labour, which proved fatal to the child, from the action of a ligament which was found coiled round its left leg.

OF CASES OF PROTRACTED LABOUR FROM A SUPPOSED HITCHING OF THE FÆTAL SHOULDERS ON THE PUBES.—Hitching of the shoulders against any particular part of the pelvis in the cases here alluded to is much less frequently the cause of the delay than simple arrest from their unusual magnitude. The author has never met with an example of protracted labour which he could fairly impute to arrest of the shoulders at the brim of the pelvis by reason of their malposition relatively to its parietes after the head had actually made its entry into the cavity.

ANCHYLOSIS AND RIGIDITY OF MOVEMENT OF THE COCCYX is a cause of protracted labour of rare occurrence. The author has never met with a single instance of a case of this kind, either in his own practice or in that of the Maternity. There is no doubt, however, that this cause of difficulty has sometimes occurred. "I have of late," observes an excellent writer, "in a particular manner, examined the os coccygis, especially in laborious cases, and in women who were turned of thirty before the birth of the first child, and have found it actually ossified in two patients, the first turned of forty and the other about the age of thirty-three: but in neither of these cases could I perceive that this rigidity retarded the labour: for in both, when the head of the child came down to the os externum, it passed along, and the women were easily delivered." Smellie's Midwifery, vol. ii. no. 2, case 1. This facility of birth, in cases of anchylosis of the coccygis, must obviously depend upon more than ordinary dimensions of the inferior aperture, and especially upon an unusual length of the antero-posterior diameter of the outlet of the pelvis.



OF THE CIRCUMSTANCES MOST DESERVING OF THE PRACTITIONER'S ATTENTION DURING HIS ATTENDANCE ON CASES OF PROTRACTED LABOURS.—These may be advantageously distributed into a short series of practical directions and remarks.

1. We have especially to watch the accession and progress of inordinate excitement of the heart and arteries. In many cases, the term labour is not a misnomer, when applied to the exertions made by the patient to effect the birth of a well-grown child at the full period of gestation. When any considerable obstacles are opposed to the accomplishment of the process, the labour must be expected to require greater exertions, and to be proportionally more severe. Hence the gradual acceleration of the pulse at advanced periods of the greater number of labours, and the intense excitement of the sanguiferous system in cases of more than ordinary severity and duration. Such a state of excitement of the heart and arteries is moreover not unfrequently accompanied by extreme restlessness; which indeed should be considered as a never-failing indication of extreme anguish of suffering. Bleeding freely, and sometimes repeatedly, constitutes the principal and sovereign power to which the practitioner can resort for the control of these formidable symptoms. The use of this same power, whilst it never fails to reduce the high tone of the accompanying fever, and of mitigating the sufferings of the patient, may also be generally relied on as a means of improving the efficiency of the labour pains; while it may be confidently expected to promote a speedy relaxation of the rigid and resisting tissues. Dr. Rush, of Philadelphia, as the reader has been already apprised, recommended bleeding before labour as a prospective measure calculated to ensure an easy consummation of the process; and the same practice the author understands is still very generally adopted by his countrymen. In a common case of slow progress, and of resistance from rigidity, it will always be a safe measure to abstract between eighteen and five-and-twenty ounces of blood; and in cases of great excitement of the heart and arteries, somewhere between five-and-twenty and five-and-thirty or forty ounces. Any accompanying irritation may be subdued by opiates and saline diaphoretics.

2. It is a duty of immense importance during our attendance in cases of this kind to watch the safety of the head. Confusion of intellect, severe pain of the head, sudden loss of vision, deli-

rium, and stupor, should be considered as harbingers of convulsions and apoplexy.

3. Great severity and long duration of the action of labour SUBSEQUENTLY to the discharge of the liquor amnii, should especially be made objects of vigilant attention and active treatment. The remedies, prophylactic and curative, for all these states of high phlogosis, are, bleeding, opiates, and saline diaphoretics.

4. Inordinate uterine action, complicated with any violent pains different from and accessional to the proper pains of labour, should be considered as indicative of some danger of rupture of the uterus. After free bleeding, the local difficulties of the case should be strictly examined, with a view to ulterior treatment. How far any further delay might be safe or preferable to a more speedily conclusive treatment, would of course present itself for a most dispassionate, and at the same time a most earnest deliberation. A life, or even two lives, might be preserved or sacrificed as the decision arrived at might be more or less discreet, and founded on the results of a large and well-directed experience.

5. The state of the soft parts in respect to temperature, swelling, tenderness, deficiency of mucus, foetor of the discharges, should be made objects of constant vigilance and attention during the progress of difficult and protracted labours. In the management of such cases, more than ordinary care will sometimes be required to secure the tissues most exposed to pressure from the effects of contusion; because contusion is too apt to be followed by inflammation of a low tone, and that by purulent discharges and sloughings.

6. Another important duty of an obstetric practitioner during his attendance on a case of protracted labour, is to attend to and from time to time to ascertain the state of the bladder. The author was once consulted in a case of protracted labour, of which the progress had been suspended at an early period by the mechanical interference of an over-distended bladder. The bladder was probably partially over-distended at the commencement of the labour, or at least sufficiently distended to occupy the greater part of the brim of the pelvis. When the author was first consulted, he found beyond the bladder, which was much distended, and which might most easily be mistaken for the membranes of the ovum, the orifice of the uterus very considerably dilated. The introduction of the catheter was attended

with no difficulty; and it was not easy to determine what had occasioned the previous suppression, unless it might have been an unusual contraction of the urethra from its more than ordinary elongation. After emptying the bladder, which contained some pints of urine, the foetal head speedily descended into the pelvis, and the patient was delivered without further difficulty in the course of about an hour and a half.

At an advanced stage of a labour rendered tedious by the foetal head occupying pretty closely the pelvic cavity, it is often found difficult to effect the introduction of the catheter. This difficulty may, however, more or less certainly be got over by opposing a firm bearing against the presenting head; so as to raise it above the tract of tissue in front, against which it is presumed to be most closely impinging. With this precaution, added to great slowness of proceeding, and adequate dexterity, the course of the urethra may be sufficiently relieved from pressure to enable the medical attendant to introduce into the bladder a small or otherwise well-adapted catheter.

In a case of retention of urine which followed an accidental displacement of the uterus during gestation, relief could not be given by the catheter, and it was determined in consultation to puncture the bladder an inch above the pubis. Six pints of urine were thus withdrawn, and in half an hour afterwards the patient made water in the usual way, to the amount it was supposed of four pounds more. The patient was delivered in this case without difficulty; but she died soon after, from the wound inflicted on the bladder. *Journ. de Méd. etc. tom. xvii. p. 180.* This result conveyed a useful but melancholy lesson.

Mr. Christian, of Liverpool, has favoured the profession with some important observations on a species of vaginal hernia which during labour must be considered as having an intimate connexion with our present object. "The distention of the urinary bladder, which in lingering labour has always been regarded by the practitioner with particular anxiety, is well known, and is well characterised by an elastic intumescence rising above the pubes and extending towards the umbilicus. It is also known that this distention on some occasions tends to protract labour; and that in this state the bladder is exposed to the risk of being materially injured in its tone or its structure. But the bladder may be distended, and labour may in consequence be protracted, where there is no intumescence above the pubes to indicate



such distention. It is therefore of great importance to determine when it may be necessary to introduce the catheter. According to the generally received opinion there is no necessity to introduce it where there is no perceptible tumour above the pubes; although the patient may not have passed any urine for many hours together." An accumulation of water in the bladder may therefore take place without any tumefaction above the pubes; and if becoming distended when thus occupying an unnatural situation, the distention may either escape the observation of the practitioner, or it may be mistaken by him for a disease of a different nature, requiring a different treatment. Under the circumstances now adverted to, a tense elastic tumour may be formed either under the arch of the pubes, as described by Dr. James Hamilton, *Cases in Midwifery*, p. 9, or on one side of the cavity of the pelvis, as published by Mr. Christian in the ninth volume, p. 281, of the *Edinburgh Medical and Surgical Journal*. "This derangement in the situation of the bladder is discovered by a peculiar fulness on one side of the pelvis, which is more remarkably evident during the presence of pain. At this time also the fulness or tumour becomes tense and evidently elastic; and although its boundaries are in general circumscribed, yet its base is somewhat diffused, extending along the side of the pelvis as far back as the sacrum. It varies of course in size, according to the quantity of fluid accumulated, and in the case I have related its diameter was equal to one-third of the transverse diameter of the pelvis. When the urine is drawn off, the whole of the tumour entirely subsides, and the catheter can be distinctly traced along its whole extent, passing by the side of the vagina, where it may be felt running from before backwards in a horizontal direction; and where it will generally be found with its concave side downwards. As the tumour is covered by the vagina, and its base diffused, there can be no danger of its being mistaken for the membranes enclosing the liquor amnii, nor does it indeed prevent the os uteri from being readily felt. If an error of this kind is at all to be apprehended, it is where the tumour is situated under the arch of the pubes."

This lateral malposition and over-distention of the bladder is either much less frequently an obstacle to parturition than the anterior variety; or from its more retired locality, it has probably sometimes existed without having been detected, or even suspected, by the practitioner. Of the anterior protrusion the

author has himself met with several cases ; but of the other variety not one.

The anterior protrusion has been fatally mistaken for the membranes of the ovum, and made the subject of puncture and laceration. To a superficial observer the bag formed by the protrusion of the urinary bladder might appear to resemble very nearly that of the ovum : it can nevertheless be readily discriminated by an attentive practitioner previously aware of this possibility. " It is strongly connected with the fore part of the pelvis : so that the finger cannot be passed round its circumference, as in cases where the true membranes are forced down : and during the interval of a pain the os tinæ can be felt situated very high, and quite undilated." See Hamilton's Cases in Midwifery, p. 16. As the lateral tumour is covered by the vagina and its base diffused, Mr. Christian observes that " there can be no danger of its being mistaken for the membranes of the ovum ; nor does it, indeed, prevent the os uteri from being readily felt."

Is it not probable that these malpositions of the bladder are often the result of previous adhesions of parts of its parietes to the neighbouring surfaces, in consequence of former bad labours, or of other causes of adhesive inflammation of the surfaces in question ? Mr. Christian states, that the subject of his principal case had once been delivered by the forceps ; and that the labour immediately succeeding had also been extremely tedious. He moreover adds, that one of the other patients, in which he had observed the same affection, had in a former labour a preternatural presentation. Two other patients had very tedious deliveries upon every occasion, though the pelvis in all was of the ordinary dimensions.

It being very possible to mistake tumours of this class for other elastic and extra-vaginal tumours within the pelvis, it becomes an important and indeed the first duty of the practitioner, in all such cases, to introduce a catheter into the bladder ; which at all events will furnish a test, if not a remedy, for the evil with which he has to contend. No other instruments can ever be required for obviating impediments to parturition exclusively of this class.

OF MALPOSITIONS OF THE FETAL HEAD AS CAUSES OF PROTRACTED LABOUR.—It sometimes happens that difficulties occur in child-birth for want of sufficient space within the pelvis, and yet without defective capacity of that cavity, or excessive size of

the child's head, but simply in consequence of the presentation of the head in an unfavourable position relatively to the superior aperture. Delays and difficulties are sometimes occasioned by trifling deviations from the best positions of the foetal head, when about to present at the brim of the pelvis: such, for example, as when the vertex might not be quite central to the axis of the passage; but inclining more or less to one side of it; so as to cause the presentation of an occipito-parietal part of the head. The common effect of this malposition is, a hitching of an occipito-lateral part of the head against some anterior portion of the pelvis, as also indeed sometimes, though less frequently, against the promontory of the sacrum. The hand will occasionally suffice to rectify this very inconsiderable obliquity of position, and of course to put the labour into a train of more rapid progress: but this failing, the practitioner will experience little or no difficulty in effecting that object by means of one of the varieties of artificial powers with which he will find himself suitably provided in our fourth class of labours.

Of all the difficulties of parturition from malposition of the foetal head, those from face presentations may be placed amongst the most formidable; and they are also unfortunately such as are least capable of being substantially relieved or obviated by the mechanical resources of our art. When the face is discovered to present at the brim of the pelvis at an early period of a labour, whether before or very soon after the escape of the liquor amnii, there can, in the author's opinion, be no doubt as to the preferableness of turning to all other modes of treatment. That operation, dexterously performed, would, at all events, give the child a good chance of preservation of its life; whilst it would also be the means of rescuing the mother on the very brink of a great impending danger. It is, however, well known that turning is an operation of considerable danger both to mother and child, when performed at a late period of a labour, and many hours after the discharge of the waters of the ovum. When therefore called upon to act, or to give an opinion in cases of this kind, the first thing we should have to consider would be the expediency, under existing circumstances, of having recourse to the operation. If we suppose, in any given case, the presenting part to have got low down into the cavity of the pelvis; that several hours may have elapsed since the discharge of the liquor amnii; and the



action of the uterus to be already inordinately urgent and powerful, it would be next to impossible to save the child by any attempts to turn; and as it also might greatly compromise the interests of the mother, it would be the obvious duty of the practitioner at once to decline that measure. He then of course would have to deliberate on the choice of other expedients; and amongst other practical points he would very naturally consider, 1st. Whether, notwithstanding the existence of a certain amount of impediment from the malposition of his case, nature might not be expected, with the assistance of a judicious management of the constitutional powers, to triumph ultimately over her difficulty; 2ndly. In what special case, or cases, there might be no good reason for indulging in any such expectation; and 3rdly. What, in such cases, should be the expedients of art for their relief.

First, As to the competency of the unassisted natural powers to effect eventually the expulsion of the ovum, with great chance of safety both to mother and child; there can, indeed, be no doubt upon the subject. The author has to state strongly his conviction, that there are very many cases of this class, amounting to a considerable proportion of the whole number, where it would not only be perfectly justifiable, but prove by far the better practice, to calculate and depend upon the ultimate sufficiency of the natural powers: and he thinks he may very safely specify, as proper objects of the cautious treatment here recommended, the subjects generally of three out of the four several positions into which authors have usually distributed face presentations; viz. those with the chin directed either to the front or to one of the sides of the pelvis.

The author would indeed be sorry to make any statement which might chance to mislead his younger brethren on a point of so much practical importance as the present; but he does feel it his duty to add, that he feels warranted in the belief, that, in a positive majority of such cases, nature might be relied upon for being eventually competent to accomplish her work, compatibly with the safety both of the lives and structures interested in the struggle, and, at all events, compatibly with the preservation of the more important life of the mother. But let us suppose it to be then asked, in what special case there might be no good reason for entertaining any expectation of an ultimately favourable issue, without the interposition

of art. To this query the author would answer, first, that a certain inferior proportion of all face-presentations, under whatever circumstances as to position, might be expected to require the interposition of art for their relief. The reader will here very naturally advert to, and make a proper allowance for, the occasional influence of coincident causes of difficulty, such as confined or malformed pelves, rigidity of parts, infirm health, feeble uterine action, etc. etc. It is replied, secondly, that nearly all face-presentations, with the forehead to the front of the pelvis, and the chin forced down into the hollow of the sacrum, might be expected to require turning at an early period, or the use of the forceps, for their consummation, even to ensure the safety of one life only. Before the forehead, if situated as now supposed, could make any considerable progress into the pelvis in front, the child's neck would be exposed to much violent straining and compression, and a considerable portion of its trunk would necessarily require to be admitted, together with, and closely folded against, the occiput, into the posterior part of the cavity. But the mechanical possibility of such a result could only arise from the casual absence of the usual and natural proportions relatively subsisting between the bulk of a child at the full period of gestation, and the capacity of the maternal pelvis.

Let us then next proceed to consider the proper measures, which it would be our duty to have recourse to in the several varieties and degrees of difficulty which present themselves in connexion with face-presentations. The author has already stated his opinion of turning, as preferable to all other modes of treatment, WHENEVER THAT OPERATION CAN BE HAD RECOURSE TO AT AN EARLY PERIOD OF THESE LABOURS. But it unfortunately very often happens that we have no opportunity of ascertaining the facts of labours of this kind, either as to presentation or position, until after the lapse of many hours subsequently to the escape of the liquor amnii.

In all face-presentations, the head usually engages in the pelvis very slowly; but in the three positions first enumerated, viz., when the chin is directed either to the front, or to one side of the pelvis, its descent ultimately into the cavity may, in general, be pretty confidently anticipated, without any artificial assistance. The author must therefore consider that the prosperous issue of the majority of such cases would mainly

depend upon the judiciousness of their constitutional treatment ; which would have most especially for its object the subduction of the inordinate action of the agents of labour, and that of its natural consequence, an excessive excitement of the heart and arteries. It must however be acknowledged, that the dexterous use of one or two fingers may occasionally be employed with great effect to facilitate and expedite the process. When the forehead, for instance, is directed to one side of the pelvis, two fingers might often with advantage be passed up and applied to the far side of the lower part of the face on the other, so as to lower the chin, and, by a gentle and gradual movement of it, to bring it forwards to engage under the arch of the pubes. This procedure failing, and the demands of the case becoming more and more urgent, it might become the duty of the practitioner to have recourse ultimately to the instrumental resources of his art. This part of the subject will come with more propriety to be considered hereafter.

As to the fourth case, that of a face presentation, with the chin bearing against the sacrum, and the forehead directed to the front of the pelvis, the author would have very little expectation of doing much good in it by the use of any of the mechanical expedients of our art that he has yet seen proposed ; excepting so far as to ensure the preservation of the mother's life. Perfect has indeed published a case of this kind, see *Perfect's Cases*, vol. ii. p. 486, in which he effected the delivery by a dexterous use of the common forceps. His account is, that " the face presented low down in the pelvis, with the chin to the sacrum, the bregma to the pubes, the pains entirely gone, the waters evacuated, and the uterus contracted."

" The position of the head being ascertained, I had the patient placed on her back, with her breech over the side of the bed, and then with some difficulty, applied the long forceps along the ears, pushed up the head, turned the chin from the sacrum to the left ilium, gradually brought it out from under the arch of the pubes, and in a short time delivered it : the body easily followed, and in a few minutes afterwards the placenta, united in one cake, with two strings, were excluded." The reader should, however, be apprised that the child, in this plausible case of Mr. Perfect's, was the second of a twin-birth, and therefore necessarily small relatively to the probable capacity of the mother's pelvis. It very possibly might have been eventually delivered quite as well,



if not better, without such interference; and, at all events, we find that it only survived its birth THREE HOURS.

All the difficulties and dangers incident to face-presentation cases, are essentially attributable to their mechanically disadvantageous relation to the parturient passage, occasioned by malposition of the foetal head.

DIFFICULT LABOURS FROM EAR AND SIDE-OF-FACE PRESENTATIONS.—These presentations are of extremely rare occurrence. There are extant several published tables, professing to give the proportional frequency of all the presentations of the foetal subject that had occurred within a given range of practice, and during a certain period of time, in which we find not a single case recorded of the presentation of either ear. In the author's private practice he has never met with an example of it; and in that of the Royal Maternity Charity, only one in seventeen years.

On considering, however, the mechanism of such labours, it is not difficult to discover the almost exclusive indication of treatment; viz. that of bringing down, by a gentle rotatory movement of the head on its occipito-frontal axis, its vertex, or any other part in the immediate neighbourhood of the vertex, towards the bottom of the pelvis. It is generally asserted by French writers, that this change of position might often be readily effected by the fingers. At all events, it would always be right to make the first attempt in that way. But should the fingers prove too short, or deficient in power, then our common vectis should be substituted, and used much in the same way. The part of the head which should furnish the proper surface of abutment, would be the portion of it immediately behind the superior ear, and as nearly as possible in a line from that ear to the vertex. By a steady bearing upon that part with the vectis, the author thinks that we might be able to effect as much change of position of the foetal head as might be proper or at least necessary in the first instance; and very probably all that might be ultimately required to be made in the greater number of cases. By the change of position just supposed, the face would be moved upwards, towards the centre of the superior aperture of the pelvis, and the forehead would probably be directed somewhat obliquely either to an anterior or posterior district of its parietes, according to the original situation of the head relatively to those parts. If we suppose this change of position to have been effected, and afterwards the occiput is found to correspond with

any part of the front of the pelvis; then we may very safely presume, that the remaining part of the process will be accomplished, without the necessity of further interference. In the event of the vertex being lodged for a tedious length of time in the hollow of the sacrum, then indeed we should have to calculate upon a very slow progress and a more doubtful issue. The head, however, in this situation, would be perfectly accessible to some of the most effectual expedients of our art. This subject will accordingly be further considered when we come to treat more directly of operative midwifery.

OF CERTAIN PRACTICAL AND ACCESSIONAL DUTIES TO BE ATTENDED TO BY THE PRACTITIONER AFTER THE PATIENT'S DELIVERY.—1. As a general rule, the practitioner should not leave the patient's residence before she is put to her permanent bed. The reason of this rule is obviously founded on the dangers of inducing hæmorrhage by premature attempts to give her the benefit "of being put comfortably to bed."

2. If he should have occasion to leave unusually soon, he should assure himself of the uterus being sufficiently contracted to prevent hæmorrhage, and of its having been so contracted for at least half an hour subsequently to the removal of the placenta.

3. He has to examine and report on the state of health and strength, and other physical properties of the child. Defects and malformations of the infant are principally the objects of this rule. Unhappy announcements on this topic should be made to the mother with the utmost discretion as to the time and best mode of conveying them.

4. He should never neglect to leave with the nurse such instructions for the management both of the mother and child as might suffice to direct her conduct after his departure.

5. Dr. Denman also very frequently left written directions with the patient herself, or one of her immediate relatives. This was doubtless in many cases intended to counteract any improper influence which he expected might proceed from the family. All directions in respect to the personal management of the patient should be given as positive rules.

6. The duty of maintaining steadily a horizontal position during many days after the delivery, should be communicated at once to the patient herself, together with its reason, which should be conveyed distinctly, and impressed strongly on her mind.

7. The medical attendant should visit his patient once daily

for the first week after her delivery ; and occasionally afterwards as the case might require. The greater number of formidable diseases incident to the puerperal state, occur within this period. At any time therefore within this period it should be made a peremptory duty of the nurse, or other attendants left in charge of the patient, to inform the medical attendant of the occurrence of a shivering fit, or of the entire absence of sleep ; of the accession of pain in the groin, or of either of the iliac regions ; or of any other indication of the incipency of a formidable disease.

8. The duties which are the objects of general rules are to be considered as common to all classes and forms of labour.



## CHAPTER XIV.

## CLASS II. OF PRETERNATURAL LABOURS.

ALL preternatural labours are included under our second class. The presentation of the child forms the principle of the entire class; all presentations, with the exception of that of the head, being comprehended by it.

Under the general head of preternatural births, we have again a subordinate distribution into two subdivisions or orders. Of these, the first is made to comprehend the presentations of the breech and lower extremities; and the second, one or both arms, a shoulder, the back, the nape of the neck, or any other part intermediately situated between the head and the breech. The principle of this division is founded on the fact, that in the one case the child might be safely delivered in the direction of its presentation, with but trifling artificial assistance; whilst in the other, the mere chance of a living birth cannot be secured without the assistance of art for the performance of one of the most capital operations of midwifery, viz. that of turning.

The following general observations may be considered as applicable to all the varieties of preternatural labours:—

1. Some women are liable to be repeatedly or even successively the subjects of preternatural labour.

2. In all cases in which the delivery is effected at the full period of gestation, the head is the part which is last born.

3. The comparative danger of all preternatural labours is in a great measure imputable to this fact; which arises from the obvious liability of the umbilical cord to fatal pressure, during the abduction of the head through the pelvis.

4. The labours comprehended under our SECOND SUBDIVISION are more dangerous than those ranged under the first, from the greater exposure of the umbilical cord to the risk of pressure, and also from the greater skill required for their safe management.

5. A great part of the safety or danger of every labour being universally known to depend upon the presentation, an early knowledge of that circumstance becomes naturally an object of the most lively solicitude. This anxiety is, no doubt, the ground-

work of much useless speculation on the subject of presumptive signs of preternatural presentations. See Denman's Midwifery, chap. xiii. § 2. We have already sufficiently described the distinctions to which the practitioner should especially attend.

OF THE FIRST ORDER OF PRETERNATURAL BIRTHS.—The varieties of presentations, in addition to those of the head, which admit of the process of parturition being performed, and frequently happily completed, in the direction of their presentation, are footling cases, knee cases, and breech cases. All the varieties of parturition comprehended under this order of preternatural births, are eventually resolvable into footling cases. For this reason, and on account of their frequency and general importance, it would seem proper to place footlings at the head of the class, as being entitled to our first consideration.

OF THE MANAGEMENT OF LABOURS HAVING FOR THEIR PRESENTATION ONE OR BOTH OF THE LOWER EXTREMITIES.—The relative frequency of this variety of labour is as about one in eighty-one and a half.

The first duty incident to its correct management is to ascertain the fact of the presentation. This is not ordinarily a difficult duty; for one or both feet are found presenting within the orifice of the uterus, or at the upper part of the vagina, soon after the commencement of the labour. The examination instituted for determining the presentation should be made with extreme caution if the membranes be unruptured; lest by any incautious proceeding the membranes should be unintentionally ruptured, and it should be prematurely discovered that a hand might be the presenting part instead of a foot. But these presentations may in general be very readily distinguished through the membranes, without exposing these delicate tissues to the slightest risk of being ruptured. The principal duty of the practitioner at this early period would be to avail himself of the gentlest use of the taxis during the absence of pain, and therefore of course during a relaxed state of the membranes. Passing his finger gently along one side of the presentation, he would speedily encounter a portion of it, which he would have no difficulty in recognising as a heel, and then along another part of it, which he would be able, with equal distinctness, to ascertain to be toes. This distinction may be in general as easily made, when the presentation does not project in the form of the finger of a glove as when it does. In some of these latter or non-elongated presen-

tations, the orifice of the uterus being considerably dilated, a hand with its longer digits may be distinctly felt in the immediate neighbourhood of one or of both feet.

2. The next duty to be attended to in the management of footling cases is to discover the POSITION of the presenting part; which would indeed be a means of discovering the position of the entire child in utero. This duty, however, should not be undertaken at a very early period of the labour, inasmuch as it might lead to a premature rupture of the membranes; and there is no particular advantage in obtaining a precise knowledge of the position at the commencement, or at a very early period of a labour under these circumstances. The French have referred the several relations of different parts of the lower extremities to the parietes of the pelvis, to FOUR PRINCIPAL POSITIONS, which they have therefore constituted the principle of so many distinct species of labours.

In the first of these positions, the heels are made to correspond to the left side of the pelvis, with a little inclination to the acetabulum. The toes will therefore of course be determined towards the right side of the pelvis and towards the sacro-iliac junction. In the second position, the heels are made to correspond with the right side of the pelvis and the right acetabulum, and the toes with the left side and left sacro-iliac junction. In the third position, the heels are turned towards the pubes and the toes towards the sacrum. The fourth position is directly the reverse of the third; the toes, and therefore the face and entire front of the child, being then parallel, or in the same direction with the front of the mother.

3. The next duty devolving upon the practitioner, which although of a purely negative character, is one nevertheless of very positive importance in practice, is that of abstaining from all manual interference UNTIL AFTER THE NATES SHALL HAVE CLEARED THE VULVA. Parturition, under its ordinary and best circumstances, is a natural process, and requires not the assistance of art to ensure its best interests. Again, parturition under these circumstances is naturally a slowly progressing process, and experience has long established the impropriety and disadvantage of obtruding upon the operations of this function any premature, unnecessary, or officious assistance, when already being safely and well performed. "In the first order of preternatural labour," observes Dr. Denman, "two very different methods



of practice have been recommended. By the favourers of the first method we have been directed, as soon as the presentation was discovered, WHATEVER might have been the state of the labour, to dilate the parts, then to pass the hand into the uterus, and to bring down the feet of the child; or, if these were originally in the vagina, to grasp them and to extract the child expeditiously, making the labour wholly artificial, without waiting for the natural expansion of the parts, or for the expulsatory action of the uterus. Would it not argue a want of humanity, say they, to leave a woman for many hours, perhaps a whole day, or even a longer time, in pain and anxiety, when we have the power of extracting the child in a very short space of time; by which the violence of the pain would be lessened, or its duration at least would be very much shortened? Others, on the contrary, have considered this practice as founded on a vulgar and pernicious error, which makes no distinction between the slowness and danger of a labour. These have considered the presentation of the breech and inferior extremities as generally safe; and have taught us that such cases ought to be, and with security may be, left to the efforts of the constitution; no kind of assistance being required in the first stage of the labour; the mother at least not suffering more than in a presentation of the head, and the chance of preserving the life of the child being by this cautious proceeding much improved. Of the superior advantage of either of these two methods, it is only possible to judge by the general event of cases of this kind. If it should prove, which I think is scarcely to be doubted, that less injury is done to the mother, and that there is a better chance of saving the life of the child by suffering it to be expelled by the natural powers, than by artificial delivery, there can be no hesitation as to which of the methods preference should be given: for the charge of the want of humanity cannot properly be laid against a proceeding, which most frequently terminates happily for both." Denman's Introduction to the Practice of Midwifery, chap. xiv. class 3, sect. 3.

The practice recommended by the former of the above classes of practitioners, as stated by Dr. Denman, cannot be too much condemned; whilst that of the latter, if adopted exactly as represented by the same writer, is liable to serious objections. If much traction is resorted to in the early stages of a labour, the extremities will be brought down by dint of force, during a

period of the labour when this artificial assistance can receive but little co-operation from spontaneous relaxation of the orifice of the uterus, and other resisting tissues of the parturient passage. The eventual effect of this procedure must be, when the breech shall have thus per force been made to engage in the pelvis, that the abdomen of the foetus, including of course the umbilical cord, would be comprehended within the rigid parietes of the yet insufficiently developed neck of the uterus; where the labour might become arrested in its progress, for a length of time which might more than suffice to destroy the circulation in the cord. But if we suppose that the child might escape this danger, it could scarcely be expected that it should survive, under such circumstances, during the unassisted passage OF THE HEAD THROUGH THE PELVIS.

To feel the precise force of this statement, the reader it is obvious must distinctly understand the circumstances here presumed; of which the chief may be represented to be a rigid and an insufficiently developed state of the neck of the uterus, and in short of the whole parturient passage. If then we assume this condition of the neck of the womb, it would follow, AS A MATTER OF COURSE, that the shoulders might not be brought down into the pelvis without much difficulty and loss of time. But if we suppose the umbilical cord to retain its pulsation, even after the supposed descent of the shoulders, still the head would have to be brought down into the pelvis, during a continuance of an insufficient development of the parietes of the parturient passage. Our experience in the management of some cases of turning, those especially rendered necessary by profuse hæmorrhages occurring in the absence or during the early stages of labour, abundantly warrants the assertion now advanced, viz., that in cases of insufficient development of the soft parts, and in labours of the class now under our consideration, the bringing down of the head into the pelvis is often attended with great and fatal difficulty. In certain cases of complicated labour there may be no choice as to the adoption of the practice here supposed, that of dilating the parts with the hand, bringing down the feet with more or less of extracting force, and of hastening every stage of the labour: although, even in such cases, the author is of opinion that much unnecessary violence is too often exerted; which therefore might be most advantageously omitted. But the hasty abduction of the more bulky parts of the child through the pelvis, during a

rigid state of the soft parts, and especially before a pretty ample development of the orifice and neck of the uterus shall have taken place, must be a wanton exposure of at least ONE valuable life to the liability of being destroyed.

4. The next principal duty which devolves upon the practitioner in the management of footling cases is to ascertain, and if necessary to change, the position of the child, relatively to the pelvis of the mother. As soon as the feet shall have fairly entered into the vagina, the practitioner will be able at once to ascertain the position of the entire child by the direction of the toes. As the position shall be found to be thus very simply ascertained, so it will continue to be with very trifling variations during the whole of the labour. In the first, second, and third positions, the heels of the child corresponding, as we have already seen, with the anterior and antero-lateral parietes of the pelvis, the toes will be found directed in all these positions towards the back and sacro-iliac junctions of the pelvis of the mother; hence the face and all the front surfaces of the child will also be directed towards the back of the mother. With these positions, the labour may be permitted to go on, without much interference of art towards effecting changes in the relative situations of the foetus. The fourth position is made to include the several varieties of position having the toes directed to the front of the pelvis. When the toes are directed to the posterior parietes of the pelvis, including the first three positions, experience has long proved that the foetal head enters into the cavity of the pelvis with great comparative facility. The chin readily finds its way to engage in the pelvis along the tract of space on either side of the promontory of the sacrum. The face subsequently finds ample room in the hollow of the sacrum, along which it is made to sweep with equal facility and certainty during its further descent; whilst the back of the head is turning as it might be on a pivot, furnished by the arch of the pubes.

In the several cases of footling births included within the range of the first three French positions, very little change is required to be effected in order to facilitate the safety of the process. Hence it is only the FIRST PART, of the second principal duty, that can in those cases require the practitioner's attention. But the case is different when the position is found to be the reverse of those just mentioned, viz., one of those in which the toes are directed towards the front of the mother. The foetal head, if



allowed to engage at the brim of the pelvis, without any change being previously effected in its position, is found to make its descent into the pelvic cavity with extreme difficulty. If, however, the child should prove one of large growth, and its head of corresponding magnitude, it is probable it might not engage at all, even with the aid of any amount of traction which it might be deemed expedient to furnish; but become permanently locked within the parietes of the pelvis. The placental portion of the umbilical cord being attached to some part of the interior of the uterus, and the other being continuous into the abdomen of the child, it is obvious that some intermediate portion of it would be exposed to fatal pressure between the head of the child and the brim of the pelvis. The child's fate would be thus determined, although no undue interference might have been resorted to at an early period of the labour, in the event of assistance being withheld at a more advanced stage of the process; which we shall presently see might then be most easily extended, so as to effect an entire change in its position.

From what has been already stated, it must appear quite obvious that the required change of position should consist in placing the child's head in such a situation as shall cause the face to be determined to the back of the mother before it shall commence its descent into the cavity of the pelvis. To effect this object the change of position should be made immediately after the expulsion of the breech through the os externum. Before this result, it would be quite useless in the greater number of cases to make the attempt by means of any purchase which the practitioner could have of the mere legs or thighs of the child; inasmuch as changing the direction of the toes or of any part of the lower extremities, could not be expected to make any change in the position of the breech, nor therefore in that of the shoulders or head. The moment, on the other hand, the medical attendant obtains the possession of the breech and thighs, he is furnished with the best leverage, for the speedy and effectual completion of the birth, which the mechanism of such a labour can afford.

With this power and at the time stated, he accordingly proceeds to effect the required movement of the body of the child; so that its face, and front surface generally, shall be determined towards either of the sacro-iliac junctions or back of the mother. It is to be observed, that the part of the child's body which must

be occupied by the pelvis immediately after the expulsion of the breech, viz., the portion of it intermediate between the breech and the shoulders, being nearly circular, must obviously contribute to make the required change of position comparatively easy; which indeed should operate as a strong inducement to the practitioner to make his knowledge of this fact available just at the juncture proposed.

5. The next principal duty of the practitioner is to favour the descent of the shoulders into the pelvis by skilfully disengaging the upper extremities. After having effected the required change of position of the child, WHEN NECESSARY, he would then have to pass up two fingers of his right hand along the back of the foetus, to the top of one of the shoulders, viz., of that which he might find most accessible; and thence over the corresponding arm as far as the elbow. Insinuating his fingers into the bend of the elbow, he should bring down the hand and fore-arm sweepingly over the face, with great care and gentleness, so as not to expose the perineum to unnecessary pressure. The other arm is to be brought down in the same way. The second is generally more easily brought down than the first.

6. As soon as the arms shall have thus been disengaged, we must have the command of the head. If in a good position, it will sometimes engage in the pelvis by simply drawing it adroitly in the direction of the axis of the brim; the breech being made use of as a handle or purchase for this purpose. But in many cases the bringing down of the head into the pelvis will not be thus easily effected. In such cases therefore we have to carry our right hand to the nape of the neck, and to pass one or two fingers of it to one side of the neck, and the rest to the other, so as to furnish ourselves with a firm purchase of the shoulders. Two fingers of the left hand must then be passed into the mouth to depress the chin, and to bring it into close approximation with the chest; which will have the effect of causing the long axis of the head to be placed in correspondence with the axis of the BRIM of the pelvis. Having completed this double purchase, the forehead should be determined to one of the sacro-iliac junctions; a moderate extracting force, accompanied by a trifling alternate action from side to side, being made use of at the same time. This is the common mode of proceeding. But sometimes an arm will come down with the body. Therefore, when the knees shall have just cleared the external orifice, the hand should

be introduced to feel for a hand ; and if one is found, it should be kept close to the child's body to secure it against the accident of fracture. The other arm is to be brought down in close apposition to the opposite hip and thigh on the same principle.

7. The last duty incident to the management of footling births, is the extraction of the head from within the cavity of the pelvis. The head, when it shall have got into the pelvic cavity, will cease to be within the reach of much further propellent force on the part of the uterus, and will therefore require to be extracted by the practitioner ; and this duty should be performed speedily, to prevent pressure on the cord ; but at the same time without violence or rashness.

OF BREECH PRESENTATIONS.—Labours having the breech for their presentation, form a second variety of the class and order of births of which we are now treating. The breech, like the feet, may present in different positions relatively to the parietes of the pelvis. At the commencement of labour the breech usually presents a very large expanded surface, which would seem to require a long time to be sufficiently PACKED to enable it to engage readily in the brim of the pelvis. The several presentations of the breech are usually distributed into the following four positions. The first is, when the back of the child is directed towards the left acetabulum of the mother. In proportion as the presenting part descends, under the circumstances of this position, its greatest breadth becomes parallel with the antero-posterior diameter of the outlet, the left hip placing itself obliquely under the pubes, and the right in the hollow of the sacrum.

In the second position of a breech case, its greatest breadth is also parallel to one of the oblique diameters of the brim. The child's back is directed towards the right acetabulum, and of course its abdomen towards the left sacro-iliac junction. It engages by the same mechanism as in the first position, and advances precisely in the same manner ; excepting that when about to enter the outlet of the pelvis, the right hip, instead of the left, places itself under the arch of the pubes. The left hip being determined towards the sacrum makes its descent along the curve of that bone, as well as along the coccyx and the entire depth of the perineum ; whilst the right hip has only to make a slight advance in front, so as to double, as if by an almost insensible movement, the edged arch of the pubes.



In the third position of the breech, the back of the child corresponds with the abdomen of the mother, whilst its anterior surfaces are directed towards the back of the mother. It rarely happens that the birth makes much effectual progress as long as the breech continues in this position; whilst during the movement immediately to follow, it still more rarely happens that the chin and forehead are not determined towards one or other of the sacro-iliac junctions, which indeed they should be, by the resistance offered to their course by the promontory of the sacrum. Thus the head is made to engage diagonally in the superior aperture, and to place itself precisely in the same situation relatively to the pelvis as when the feet present in the first or second position.

The fourth and most unfavourable position of a child presenting by the breech, is when its front surfaces are parallel with those of the mother; its back being at the same time directed towards the back of the mother. A child that might pass in any of the three first positions with moderate facility by a due exertion of the natural powers, might probably not pass at all in the fourth, without the aid of so much extra force as would almost certainly compromise its life. In this case, it wedges itself most inconveniently within the pelvis; the relations of the several dimensions of the breech and the pelvis not being coincident. When the pain is great, the breech is forced so low down into the pelvic cavity, as to give one the impression that by a few more efforts it might make its way through altogether; but it again as certainly recedes when the uterine exertion ceases. The long dodging and protractedness of the process are such as almost always to compromise the child's life.

OF THE MANAGEMENT OF LABOURS HAVING THE BREECH FOR THEIR PRESENTATION.—The practitioner's first object should be, to ascertain THE FACT of a breech presentation; and the second, to distinguish its position. Labours under the circumstances of a breech presentation are so slow in their progress during the earlier stages, that many hours usually elapse before the practitioner can assure himself of the fact. In a breech case presenting distantly, the presentation is sometimes exceedingly obscure, especially before the rupture of the membranes. The part for which the breech is most apt to be mistaken in these cases is the head; which latter however should be distinguished by its own

characteristic properties, the absence of which being assumed to indicate the probability of a breech presentation. By a little care and cautious perseverance, we may also distinguish the anus and the genitals, as likewise the sulcus between the genitals. In the male, the scrotum is sometimes much swollen, as has been already intimated. In the foetal state there is naturally a communication between the abdomen and the tunica vaginalis, which suffices to account for the swelling here alluded to. But this does not cause any difficulty.

The position of the presenting part will serve to indicate the situation of the child in the uterus; the foetal abdomen and of course the folded extremities being in the same direction with that of the genitals. In some cases when the practitioner has been in doubt of the actual presentation, he has found it out on withdrawing his finger, by discovering that it was tinged with meconium. When the child enters the pelvis by this presentation, there is great pressure made by the uterus on the abdomen of the child, which has the effect of squeezing the meconium out of the intestines.

In the progress of the descent of the breech into the pelvis, it should be made a chief object of attention to ascertain the state of the orifice of the uterus. If there be pains, there can be no indication for early interference; and if not, the principal indication would be to wait, and to sustain the patient by administering to the constitutional symptoms.

In the further progress of the case, attention should be always paid to the security of the navel-string. The cord is not so liable to pressure in this presentation as in that of the feet. But when the breech shall have descended as low as the external parts, a portion of the navel-string may possibly escape, so as to be exposed to compression between the thighs. Here we must give some assistance, otherwise it could scarcely be expected to escape danger. If it should be necessary to give this assistance before the entire breech shall have escaped from within the cavity of the pelvis, an index finger should be passed into the child's groin, with which the presenting part should be drawn down in correspondence with the direction of the outlet of the pelvis. When a moderate extracting force shall thus have been applied to one groin, the same advantage should be extended to the other; and this action should be alternated, either until the

extraction shall have been completed, or until it shall become necessary to supersede the use of the finger by the greater power of the blunt hook. This latter power should be used very rarely, and then only with the greatest caution and dexterity. When the breech shall have been born, the lower extremities should be carefully disengaged, in order that the entire trunk may be speedily made available for rectifying, when necessary, the position of the head.

We sometimes find the child's back pretty directly determined to one side of the mother, and the hips to the symphysis of the pubes and the sacrum. This position might be obviously promoted by a cordiform shape of the brim of the pelvis. In such cases, nature is usually competent to propel the entire breech through the external parts without assistance. But immediately upon this result, the breech should be taken hold of, and so far changed in its position as to bring the back into direct correspondence with the abdomen of the mother. It then becomes a case to be managed on the usual principles of footling births. In the absence of sufficient uterine action, the practitioner must give some slight assistance. Recollecting the situation of the thighs, he would have to pass up a finger or two of one hand into the groin, and of the other along the sacrum, and then to draw down, principally with the finger or fingers introduced behind. When we shall have thus effected the extraction of the breech, the back, as in other cases, would require to be determined towards the front of the mother.

Let us suppose, in the next place, the foetal genitals to correspond in their direction with the front of the pelvis. This would constitute a breech presentation of the fourth position. If the child were small, or of a very moderate size, it would pass probably without much difficulty in its existing position. But if, on the contrary, it were of full size, it would require some assistance; or it might not pass at all, or not in time to ensure the preservation of the child's life. In a case of this kind, a strong pain may often be found to bear on the presenting part, and to propel it deeply into the pelvis; but, on the retirement of the pain, it is found as certainly to mount up again. In cases of this description, nature should be allowed time to exert herself fully. After waiting for adequate relaxation of the soft parts, the fingers must be passed up to the groins in the manner already directed, and the back must be determined towards the front of



the pelvis, and the process completed by traction of the presenting part. The child however proving very large, and the pelvis small, we might not be able to effect our purpose by the fingers alone, and a case would thus arise for the use of the blunt hook. The hook part of that instrument, rather moderately curved, should be insinuated cautiously along a directing finger or two of the left hand, in the same manner as the living finger in the former case, to effect the movement required for the extraction. With the blunt hook thus applied, and antagonized by one or more fingers of the left hand, the practitioner would find himself competent to exert even more force of extraction than he might deem safe or prudent to use. We have accordingly to draw down with a VERY MODERATE DEGREE OF FORCE, which we have to apply alternately first to one groin, then to the other, until the greater part of the breech shall have made its exit; after which the hands exclusively are to be made available for bringing down the lower extremities: which being effected, the case of course will remain to be further treated on the principles to be attended to in the management of footling births.

OF KNEE PRESENTATIONS.—The author has never met with an example of presentation of the knees. The tables which profess to notice them have usually given their proportional occurrence as one in four or five thousand births; a result however, which by reason of the extreme infrequency of its data, must be considered liable to much uncertainty. They are cases which can require no peculiarity of treatment, and the only duty of the practitioner would be to abstain from all interference until the feet shall have protruded.

OF THE SECOND ORDER OF PRETERNATURAL LABOURS, INCLUDING ALL VARIETIES OF CROSS-BIRTHS.—The peculiarity of these births is, that they present by parts of the foetus intermediate between its breech and head. Under these circumstances, it is a fact which has been long established, that the child cannot pass in the direction of its presentation, and therefore requires the interposition of art for changing that presentation. The operation by which such a change of presentation is effected, is called that of TURNING.

This operation was introduced into our profession at an early period of the seventeenth century, by Ambrose Paré, in the midst of very strenuous opposition to it by the surgeons of that time. It has been said, that Philomenes recommended the same

practice. However that may be, it is certain that the credit of its actual introduction into practice must remain with Paré, although it came not to be generally adopted until after his death.

Hippocrates proposed in cross presentations to shake the parturient subject until the child should be shaken into a right position; and he illustrated this idea by putting an olive into a bottle which admitted of passing only longitudinally and not transversely; which therefore he could not get away, until by shaking the bottle it was brought into its neck or mouth LONGITUDINALLY.

Celsus, who wrote about a hundred years after the Augustan age, directed that in presentations of the lower extremities, the feet should be brought down; but on the subject of actually changing the presentation he gave no directions.

The only notion entertained by the ancients of any operation of turning was that of bringing down the head; which modern experience has proved to have been little calculated to improve the interests of our art.

Turning, in modern practice, is performed in two opposite states of the uterus; namely, in a state of comparative relaxation, and of great rigidity of that organ. Its state of relaxation precedes, and seldom goes long beyond, the escape of the waters; whereas its opposite state may be usually considered as commencing with or soon followed by that incident. As this difference of condition of the uterus is one of great importance in its influence upon the facility or difficulty of the operation of turning, it should be considered as a valuable index for the direction of practice, as well as a prominent boundary line, by the distinction which it creates. In the relaxed uterus the operation of turning is rarely attended with much difficulty; whereas, during much rigidity and violent contraction of that organ, it is usually performed with great difficulty and no inconsiderable danger.

OF RULES FOR THE PROPER PERFORMANCE OF THE OPERATION OF TURNING.—1. A careful examination should precede this operation, in order to ascertain with the utmost possible correctness the situation of the presenting part of the child relatively both to the uterus and the pelvis. Inasmuch as the membranes of the ovum are sometimes exceedingly susceptible of rupture upon the slightest touch, it is to be observed that such examinations should be performed with great care, and in the absence of expellent efforts of the uterus.

2. In ordinary circumstances, the operation should not be undertaken until after a pretty complete development of the orifice of the uterus ; the membranes being here presumed not to have given way at an early period of the labour. The early escape of the liquor amnii should indeed be considered a serious misfortune in cases of this kind.

3. The professional attendant, before he undertakes to operate, should generally, either with or without consultation, communicate freely and honestly with the friends of the patient, on the probabilities of the issue of his case ; inasmuch as its consequences might ultimately prove of serious importance to his own reputation. The elements of such a prognosis have first for their object the interests of the mother, which should rarely be compromised ; and secondly those of the child, which must in all cases be considered subordinate, but nevertheless sufficiently important to make it a bounden duty on the part of the practitioner never wantonly to sacrifice them.

4. Directions should be given in detail for the due preparation of the patient, as to any alterations in dress, position of her person, bed-furniture, and also of all conveniences and necessities likely to be required during the performance of the operation.

CIRCUMSTANCES REQUIRING THE OPERATION OF TURNING. — Turning may be considered, either as the result of a necessity founded upon the existence of a cross presentation of the child to the birth, and such as cannot under any circumstances, at the full period of gestation, be dispensed with ; or it may be performed, as it often has been in modern practice, as the best measure to be adopted under certain circumstances and varieties of complicated labours ; although such labours might have the head of the child for their presentation. Of this latter class of cases we shall take due notice when we come to treat of them specially under their respective heads.

Before the operation of turning is undertaken, the patient should be conveniently placed on her left side, with her head rather low, obliquely across the bed, and with her breech as near the edge of it as possible. In order to ensure the permanence of this position, it might often be required to place under the sheeting, and without the knowledge of the patient, a pillow or some other article of proper bulk and softness, to impede her receding movements. This will be often found a provision of great importance to the success of the operation.



In the relaxed state of the uterus, and in the event of the orifice of that organ being already considerably developed, it will generally be found tolerably easy to introduce the hand into its interior; but before that attempt is made, the practitioner should be careful to make his choice of the hand best adapted to the case. In cases having the extremities of the child determined towards the abdomen of the mother, the right hand should be made use of for the operation; whereas, in those having its front surfaces corresponding to the back of the mother, the left will be found best adapted for its performance. In all cases of first births under these circumstances, the introduction of the hand into the vagina might be expected to be attended with considerable difficulty; and that part of the process should be performed with the utmost slowness and gentleness on the part of the practitioner. The hand is to be introduced into the os externum in the form of a cone, *digitis in uno junctis*. The external aperture is to be gradually developed by means of this manual wedge; and the wedge, as the reader is well aware of, is the most efficient mechanical power: the efforts of propulsion being repeated from time to time in the gentlest manner.

It will be enough at first to introduce the three first fingers. Presently the little-finger will be easily admitted, together with the others, as far as the second joints. After another interval of uncertain duration, the parts will be found sufficiently dilated to admit of the hand as far as the third row of joints. In a short time subsequently, they will admit of the thumb being added to the cone formed by the fingers; and after having been accustomed for a few accessional minutes to the presence of the thumb, they will admit of the introduction of the entire hand into the interior of the vagina, without putting its parietes injuriously on the stretch. If the orifice of the uterus be supposed to be thus amply dilated, the hand will find its way readily into the body of that viscus; which indeed it should be a great object to accomplish without causing the rupture of the membranes.

It should next be gradually conducted on the outside of the ovum, as far as the feet, which it would be able to feel through the membranes, and which it should therefore seize, including the membrane immediately interposing, within its grasp. This seizure will usually have the two-fold effect of causing the membranes to be ruptured, and of discharging the greater part

of the liquor amnii. Whilst this latter incident is taking place, the practitioner may accomplish the greater part of his object by bringing one or both feet into the vagina, or even, as might often be expected, as far as the os externum. If both feet are found within the uterus, so near each other as to be readily grasped together, it is usually considered the better practice to bring BOTH down at the same moment, and by the same effort. The change of position of the child will thus be found to have been already completed if we suppose the uterus, as indeed we have actually supposed it, to have been in a state of relaxation. The case is thus become identified in its conditions with those of a footling birth, and therefore the subject of similar ulterior treatment. If the feet be found not to be so nearly together in the uterus as to be easily embraced within the same grasp, the author considers it sound practice to take hold of the foot which he finds most accessible, and to bring it down into the vagina unaccompanied by its fellow. One extremity will furnish a sufficient purchase to enable the practitioner to give all the assistance that the case may stand in need of.

It may indeed be generally presumed, that under the circumstances here detailed, the operation may often be completed without interference with the circulation in the cord; which should be considered as furnishing a good general rule for entrusting the NEXT immediate stages of the process to nature.

When we have to turn, under the circumstances of a uterus in a state of RIGIDITY, which forms incomparably the most important variety of the duty now under consideration, the case is not to be thus easily disposed of; as it will often present difficulties of no slight moment to the operator, and expose the patient to no inconsiderable danger. Hence the propriety in cases of this description of forming a correct prognosis, and of communicating a very cautious one as to the probable or even possible result of the operation of turning, before it is undertaken. This, it is obvious, cannot be done without taking an ample view of the conditions of the case. These would naturally distribute themselves under some such considerations as the following:—1. The period of commencement of the labour. 2. The period of discharge of the liquor amnii. 3. The state of the orifice of the uterus at that time. 4. The precise character of the presentation. 5. The amount of excitement of the heart and arteries. 6. The degree of contractedness of the uterus.

7. The existing amount of descent of the presenting part. 8. The condition of the parturient organs as to temperature and intumescence. 9. Any constitutional or other changes that may have supervened upon, or been produced by, the actions of labour.

It is always a condition of the operation of turning, under the circumstances of a CONTRACTED uterus, that the liquor amnii shall have escaped; inasmuch as the womb is not competent to contract to the full amount of its capacity for that action, whilst still distended by the waters of the ovum. It is, however, a fact well known, that the contractions here spoken of come on usually very gradually, subsequently to the rupture of the membranes. In many cases we may turn moderately easily, although five or six hours shall have elapsed: and we may generally calculate upon a comparative suspension of at least any STRONG contractions of the uterus, for an hour or two after a spontaneous discharge of the waters. If, therefore, a practitioner be consulted at this period, he may expect to be able to introduce his hand into the uterus with moderate facility, provided the orifice of that organ be sufficiently dilated. But it often unfortunately happens, that we have to deliberate upon the operation of turning many hours after the escape of the liquor amnii, although the orifice of the uterus might be still in a state of great rigidity. Should such labours be allowed to become protracted, the change of position of the child in utero would be rendered eventually difficult; whilst on the opposite view of the case a premature attempt to introduce the hand might have the effect of compromising the state of the circulation in the cord. The author would propose, in a case like this, to proceed to the operation, in the course of a few hours after the escape of the waters; although he might have to use some force to effect the dilatation of the orifice of the womb. Before, however, he entered upon this duty, he would premise a full and free bleeding, with the view of predisposing the os uteri to dilate more readily. After having introduced his hand into the vagina, he would dispose of it as in a former case, in the form of a cone. He would then proceed to introduce this cone by very slow and successive stages through the os internum. This process might occupy one or more hours, as the part might be more or less rigid. The practitioner's great object should be to effect his purpose with as little irritation or contusion of tissue, from the application of force, as might be compatible with his object. It is a good



general rule not to press the hand strongly against the parietes of the orifice of the uterus, DURING a pain; but simply to maintain passively the advantage previously possessed.

The orifice of the uterus having obtained a sufficient amount of dilatation, to admit of the safe and easy passage of the hand through it, the practitioner will find himself in a situation to judge, more correctly than he previously had been enabled to do, of the position of the child in utero. That point he would then therefore have carefully and finally to determine. He might then have to withdraw the hand which, 'from not knowing the precise position of the child sooner, he had first used; as its further use might not be compatible with the subsequent mechanical treatment of the case. For example, if after passing the hand into the womb, he should find it introduced into that part in which he might not be able easily to reach the feet, it would be better to withdraw that hand and introduce the other in its stead: and this supplies a practical exemplification of the rule usually given as to the choice of the hand to be used in the operation of turning in different cases. The rule is as simple as it is practicable, and should never be neglected.

After introducing the other hand, which should be conducted closely to, and in a flat form over, the surface of the child as far as the feet, an attempt should be made to take an easy purchase of them between the fingers and thumb, without closing the hand into a fist, as that might often be attended with great difficulty and perhaps with some degree of danger. All this should be accomplished, without involving the cord in the practitioner's grasp. Having got one or both feet within the sort of purchase now supposed, the hand, together with the limb of the child, is to be withdrawn; which, notwithstanding the imperfect nature of the purchase, is usually to be effected without any considerable difficulty.

By this part of the manœuvre, however, the change of the presentation is not effected, nor are the feet brought down beyond the lower part of the vagina. Hence it becomes necessary to obtain a securer hold of the extremities than the one now described before the actual turning can be accomplished. This is to be done by placing a ligature over the child's ankles. The practitioner's hand having been brought down into the vagina, as already described, a doubled riband is to be thrown over the wrist of the operating hand by means of the other, and drawn into a running noose,

which must be passed gradually over the hand, so as to embrace the child's ankles. This part of the mechanism may be expected often to prove tedious and difficult. It is, however, to be done, without inflicting any serious injury on the tissues of the mother. The noose having been drawn tightly round the child's ankles, the hand of the practitioner is thus set at liberty; and room is furnished for the other hand to be carried up to the foetal shoulders, there to be employed as a levator or propellent power. When the change of position is to be effected, the originally presenting part of the child is to be propelled from the brim of the pelvis upwards, by one hand; whilst the foot is brought down by adequate traction with the other. The author has met with only one instance, in the course of his experience, of his entire failure to accomplish the operation of turning in the way he has now described; although he has met with many single examples, where attempts of the same description had failed in the practice of some of his friends. A provision for the management of such unfortunate cases will be detailed in our last or instrumental class of labours.

It not unfrequently happens that the natural difficulties incident to the class of labours now under consideration have the effect of producing extreme excitement of the heart and arteries; and such excitement and vehement action of the uterus, are in many cases mutually proportional, and equally conducive to the production of the difficulties to be encountered in the mechanical treatment of such examples of cross-births. Hence it is our duty in a large proportion of cases to subdue the violent actions in question, before we attempt to effect the operation of turning.

This object is to be attained by two principal measures, namely, first, by the abstraction of twenty or thirty ounces of blood, or even more, in cases of extreme excitement; and immediately afterwards, by the exhibition of a full dose of opium. These measures being premised, the author can scarcely suppose that an adroit operator could fail in his attempt to turn, even without at all compromising the soundness of the maternal tissues. The operation is, however, not to be safely performed in the free and easy manner in which some boasting and ignorant practitioners are too much in the habit of speaking of it; nor is it to be done safely in a short time; be that half an hour, or any other similar measure of time, which the same inexperienced egotists may choose to name.

Under the circumstances we are now describing, it is to be considered as one to be performed most slowly. Forcible or quick movements are especially calculated to produce contusion, and even rupture of delicate living tissues. An attempt, for example, to pass the hand into the uterus, in the space we will suppose of ten minutes, in a rigid state of the orifice of that organ might well be expected, either altogether to fail, or to be followed by more deplorable consequences; whereas the hand might be passed up into the same uterus in the space of one or two hours, with perfect safety and often with perfect prosperity of result. One can scarcely believe the amount of advantage to be obtained by slow progress in the performance of operations of this kind, until experience comes to put us in possession of the fact. We should follow nature herself as our model in the management of rigidities of the uterus. In natural labours the head of the child is the wedge which is employed, and we observe in cases of rigidity how very slowly it accomplishes its object: and nevertheless we find that it very rarely fails to effect it. In the class of cases which we have now to deal with, the practitioner's hand is the instrument: and is it to be expected that the artificial instrument could SAFELY effect in a quarter or half an hour, what nature often chooses not to do in less time than a quarter or half a day? Dr. Hunter used to advise his pupils to consider their patients as being asleep, and to perform the operation at every stage of its progress, as if they must not awake them.

A medical practitioner is occasionally consulted in the more deplorable cases of this class, when it might be scarcely of use to attempt the performance of the operation, with any other object, than to effect the termination of a dangerous or tempestuous labour. Let us suppose an extreme case; such as that of a patient who has been in labour three or four days, with a swollen arm of the child presenting at the vulva, the greater part of the shoulder wedging deeply in the pelvis, the soft parts of the mother greatly tumefied and inflamed, the discharges from the uterus filling the room with a foetid stench, the abdomen of the poor woman greatly enlarged but nevertheless hard and tender to the touch, the countenance bloated and the complexion of a purply venous hue, the remnant of a high-toned action of the arteries now sunk into a state of atony; add a pulse of a hundred and fifty or a hundred and sixty strokes in



the minute as the measure of its frequency, and all accompanied by a low muttering delirium: suppose such a case, and what can any intelligent person expect from the operation of turning, or indeed from any other operation whatever? It is obvious, therefore, that in a case of this description, our prognosis should be most unfavourable, and at the same time sufficiently guarded against the possibilities which an experienced reader may easily represent to himself; so that it should not fail to shield the professional reputation of a party who might be requested thus late in the progress of the labour to employ or to direct the employment of the ultimate resource of our art. In a case like this, there can be no doubt of the actual death of the child for many previous hours; and it would be cruel to diminish the chance of recovery which may yet remain to the mother, by the performance of so difficult an operation, as that of turning in all probability would prove under such circumstances. For the relief of unhappy cases of this sort, the author has been in the practice of recommending an operation of another kind to be performed UPON THE CHILD, by which the impediment to the completion of the labour might be obviated; namely, that of bisection of the foetus at the neck. Assuming the arm or shoulder to be the presenting part, and that it was already propelled deeply into the pelvis, the reader will find, under our fourth or instrumental class of labours, two varieties of instruments, both of which would seem well calculated to meet this object. See Plate XLII. of the Atlas, figs. 1, 2, 3.

It may be considered a good general rule, never to proceed to the operation of turning when the death of the child is known to have taken place; without at least well balancing the advantages and disadvantages of that operation against those of decapitation or of any other mode of delivery which might be suggested, for the security of the mother; inasmuch as under the circumstances supposed, the preservation of the mother's life should be deemed the only legitimate object of our treatment. This subject will be further considered, when we come to treat of embryotomy operations.

The difficulties of turning will appear, from what we have already intimated, to depend principally upon the rigidity or violent action of the uterus; but they may also in part be ascribed to inconvenient positions of the child in the womb, and its relations to the pelvis.

When the child is well packed into a rounded form so as to have its lower extremities folded in front, and within a very short distance from its upper extremities, it may frequently happen, that the practitioner shall be able to reach ONE FOOT without being obliged to pass his hand high up into the uterus. He should accordingly never lose an opportunity of this kind, as it will enable him to perform the operation much less painfully to his patient, and much more safely to the preservation of the child's life.

The author has met with a few examples in the course of many years' practice, of exceedingly elongated uteri, where he found the feet of the child located very high up relatively to the abdomen of the mother. In all these cases he encountered much difficulty in performing the operation of turning. In all cases of great rigidity of parts, whether of the uterus, or of the parietes of the vagina, the young practitioner cannot be too strongly recommended to use forbearance, and to perform the operation most slowly; injuries when incurred being invariably inflicted by quick movements, or by the application of inordinate force. A prudent practitioner will never fail to consider the superior claim of the mother to be saved.

Some further remarks on the subject of turning will unavoidably present themselves during our treatment of cases under our third class, or that of complicated labours, for the relief of certain varieties of which this operation is especially adapted.

In connexion with the subject of turning, and indeed as an essential appendage to it, we have here to notice a supposed provision of nature to supersede the necessity of that formidable operation in extreme cases, claimed as an original suggestion or discovery by the late ingenious Dr. Denman.

"In presentations of the superior extremities," observes that able author, "when the waters have been long discharged, and the shoulder of the child is jammed at the superior aperture of the pelvis, it was said to be expedient and necessary to pass the finger and thumb in the form of a crutch into the armpit of the child, in order to raise the body towards its head, and towards the fundus of the uterus, till it was sufficiently moved out of our way to allow of the introduction of our hand into the uterus. But in some cases, when we are first called, the shoulder is so far advanced into the pelvis, and the action of the uterus is at the same time so strong, that it is impossible to raise or move the child, which is so forcible

bly impelled by the pains as to overcome all the power we are able to exert.

“ This impossibility of turning the child, had in the apprehension of writers and practitioners left the woman without any hope of relief; but in a case of this kind which occurred to me about twenty years ago,” that was as the author believes about 1785, “ I was so fortunate as to observe, although it was not in my power to pass my hand into the uterus to turn the child, that by the mere effect of the action of the uterus, an evolution took place and the child was expelled by the breech. As to the manner in which this evolution takes place, I presume that after the long-continued action of the uterus, the body of the child is brought into such a compacted state as to receive the full force of every returning action. The body in its doubled state being too large to pass through the pelvis, and the uterus pressing upon its inferior extremities, which are the only parts capable of being moved, they are forced gradually lower, making room as they are pressed down for the reception of some other part into the cavity of the uterus which they have evacuated, till the body, turning as it were upon its own axis, the breech of the child is expelled as in original presentations of that part. Nor has there been anything uncommon in the size or form of the pelvis of the women to whom this case has happened, nor have the children been small, or softened by putrefaction, because one or more children have in this way been born alive. I believe, on the contrary, that a child of the common size, living, or but lately dead, in such a state as to possess some degree of resili-  
tion, is the best calculated for expulsion in this manner. Premature or very small children have often been expelled in a doubled state, whatever might be the original presentation, when the pelvis was well formed, or rather more capacious than ordinary; but this is a different case to that we are now describing. Yet the knowledge of this fact, however unquestionably proved, does not free us from the necessity and propriety of turning children presenting with the superior extremities, in every case in which that operation can be performed with safety to the mother, or give us a better chance of saving the child. Under such circumstances, the instructions by former writers and the observations we have before made, must still be considered as proper to guide our conduct.” Denman’s *Introduct.* chap. xiv.



sect. 8. Simmons' Lond. Medic. Journ. vol. v., and Journ. de Méd. de Paris for April and September 1785.

Dr. Denman's theory of spontaneous evolution was very generally accepted; and it maintained its ascendancy in the profession, until it was superseded by a juster view, as the author thinks, published in a well-written essay by Dr. John Douglas of Dublin in 1811. The following is a succinct explanation of Dr. Douglas's doctrine as given in his own words:—

“But in order to render as clear as possible the successive movements in this astonishing effort of nature, I will endeavour to describe, still more precisely, the situation of the foetus immediately prior to its expulsion; the entire of it somewhat resembles the larger segment of a circle. The head rests on the pubis internally; the clavicle presses against the pubis externally, with the acromion stretching towards the mons veneris; the arm and shoulder are entirely protruded, with one side of the thorax not only appearing at the os externum, but partly without it: the lower part of the same side of the trunk presses on the perineum, with the breech either in the hollow of the sacrum, or at the brim of the pelvis, ready to descend into it; and by a few further uterine efforts the remainder of the trunk with the lower extremities is expelled. To be still more minutely explanatory in this ultimate stage of the process, I have to state that the breech is not expelled exactly sideways, as the upper part of the trunk had previously been: for during the presence of that pain by which the evolution is completed, there is a twist made about the centre of the curve at the lumbar vertebræ, when both buttocks instead of the side of one of them, are thrown against the perineum, distending it very much; and immediately after, the breech and lower extremities make their exit; the upper and back part of the breech appearing first, as if the back of the child had originally formed the convex, and its front the concave side of the curve.” Douglas's Explanation of the real process of the Spontaneous Evolution of the Foetus, p. 29, Edit. 2, Dublin.

Dr. D. submits to his reader seven cases which go most directly to prove the truth of his doctrine. Since the original publication of his pamphlet the author has himself met with three cases of this very unusual variety of natural birth. In all of them an arm presented, and protruded with the flat of the corresponding hand turned up towards the abdomen of the mother. One of them

was the first of twins, and the process was beautifully exhibited. It occurred in the practice of Mr. Buschell, of Crawford-street, and another gentleman since deceased. The other two cases took place in the years 1821 and 1830 in the practice of the Royal Maternity Charity; and upon the whole the author has not a doubt that Dr. Douglas's explanation supplies a strict representation of the facts which actually take place in those very rare and remarkable cases. The same doctrine was adopted, and on the evidence principally of one case plausibly illustrated, by the late Dr. Robert Gooch. See "A Contribution towards solving the disputed Question, What is the Nature of the Process called the Spontaneous Evolution of the Fœtus?" *Transact. of Coll. of Physicians, Lond. vol. vi. p. 230.*

## CHAPTER XV.

## CLASS III. INCLUDING ALL THE VARIETIES OF COMPLICATED LABOURS.

THE labours comprehended in this class are usually denominated complex or complicated, from the fact of their being accompanied by unusual or extraordinary circumstances, calculated to compromise their safety, or at least very greatly to increase their danger. The following may be enumerated as the principal varieties of complex labours: namely, 1st, Those of a plurality of children at a birth. 2nd, Labours complicated by prolapsion of the umbilical cord. 3rd, Labours accompanied by dangerous faintings. 4th, Labours accompanied or preceded by epileptic convulsions. 5th, Cases at whatever period of gestation accompanied by uterine hæmorrhage. 6th, Labours complicated with rupture of the uterus, and injuries of other tissues more immediately interested in severe and artificial births: and lastly, labours complicated with diseased conditions, and malpositions of the uterus and adjoining parts.

OF TWIN AND OTHER PLURAL BIRTHS.—The human female is ordinarily uniparous. Twin cases are said to occur in the proportion of one in seventy or eighty births. On taking the average returns, however, of eight public registers upon this subject, the author has found the mean proportion to be within a small fraction, as one in ninety.

The infrequency of triplet births makes it difficult to discover their numerical proportion; the best approximation would probably average them as one in about six or seven thousand.

The average of quadruplet births appears to be beyond the reach of any well-founded calculation; while quintuplets and other multiples of the function must be considered as more legitimately belonging to the subject of traditionary romance.

Authors have usually enumerated the following circumstances, as presumptive signs of plural gestations: 1. An unusual size of the abdomen. 2. An unequal distension of the abdomen; with two or more distinct fulnesses occupying different parts of it. 3. Perception of an unusual motion, and of motions in two or more distinct places. 4. The perception of the phenomena called



quickening at two or more distinct and successive dates of the pregnancy. 5. An unusual slowness of the earlier stages of labour. 6. A presumed second discharge or successive discharges of the liquor amnii, and an unusually large size of the abdomen remaining after the discharge of the liquor amnii. 7. The presentation of supernumerary members, as of two superior or inferior extremities of the same side. 8. It may be doubtful how far we might with propriety add, a distinct foetal pulsation to be perceived in different parts of the abdomen, upon the application of the stethoscope.

The above signs of plural gestations may be admitted as moderately presumptive of the fact, in many cases, and in certain combinations. At the same time, however, it must be acknowledged that they are not absolutely and in all cases to be depended on, as positive evidence: they are all liable to misconstructions, and the fact of a plural gestation cannot be positively ascertained until one child shall have been born.

OF THE OBSTETRIC MANAGEMENT OF TWIN BIRTHS.—The mode of management of twin births must essentially depend upon the character of their presentations. All possible varieties of presentation, or rather of relative situations of twin children to each other and to the mother, may be enumerated as follows: viz.

1. Both children presenting by the head, and both heads nearly parallel at the commencement of labour. In the progress of such a labour one child would almost certainly obtain precedence of the other, although cases have occurred of the interception of one by the too rapid advancement of the other.

2. Presentation of one child by the head, and of the other by the feet. Such a complication of the presentations would usually be discovered too late for useful interference. For records of curious cases of this description, see *Med. and Phys. Jour.* vol. xxv. p. 29, the old *Jour. de Méd. de Paris*, vol. xxxvi. p. 439, and *Transact. of the Royal Med. Chirurg. Soc. of London*, vol. xii. p. 366. The proper treatment is, to open the first presenting head, and forthwith to finish its birth, so as to leave ample room for the birth of the other child without mutilation.

3. One child presenting by the head, and the other lying across the brim of the pelvis. The head case, if first presenting, and without interception, must be allowed or made to pass either with or without assistance.

4. Breech and head ; sometimes the one, and sometimes the other, foremost. It is scarcely possible that these parts should engage at the same time, in such a manner that they could enter into the cavity of the pelvis together. They will probably both pass without the assistance of art : if not, the forceps must be made available for the delivery of the one, and the curved finger or blunt hook for the extraction of the other.

5. Both children presenting transversely. The operation of turning must be had recourse to for the eventual delivery of each.

6. One by the shoulder, and the other by the breech. Each must be brought away according to its own indications ; turning being required for the shoulder case, and the common treatment of breech presentations for the other.

7. One transversely, and the other by the inferior extremities. If the arm or shoulder be found to have already entered deeply into the pelvis, the hand should be forthwith introduced into the uterus for the purpose of turning ; which operation should, however, be performed, if possible, with more than ordinary gentleness.

#### OF DUTIES APPLICABLE TO ALL VARIETIES OF PLURAL BIRTHS.—

1. It is perhaps our first indispensable duty, after the birth of one child has been completed, to ascertain the presence of a second. This is to be done by application of the hand to the abdomen. In the event of another child remaining in the uterus, the uterine tumour will be found, although considerably reduced, nevertheless still very bulky, occupying a part of the abdomen considerably above the umbilicus, and stretching up so as to reach the scrobiculus cordis. This tumour will, in most cases, be found within a comparatively relaxed abdomen, and its foetal contents perceptible through the parietes of the womb. These circumstances may serve as a sufficient diagnosis of the nature of the case ; although, in a very small proportion of examples, it is liable to failure as an absolute test. In a case which occurred in the practice of Mr. Aikin, of Warrington, afterwards Dr. Aikin, an enlarged ovary was for the moment mistaken for the presence of a second child in the uterus, after one had been already born *Med. Comment. vol. ii. p. 300.*

After one child shall have been born, the second ovum may generally be easily found presenting, by what we call the internal examination. This fact being ascertained, it would become the practitioner's duty to apply a broad bandage round the abdomen

of the patient, in order to give that support to the uterus during its second efforts which it possessed during, what may be properly enough called, its first labour. This precaution is well calculated to prevent hæmorrhage, as well as to prepare the uterus for renewed exertions. The first child having been removed from its mother by the usual bisection of the umbilical cord, the practitioner has to prepare himself for the management of the second labour. The maternal part of the navel-string of the child already born may be now supposed to present loosely at the vulva. The fact of the existence of a second child having been established, the practitioner will of course apply no traction to the cord of the first, lest he should separate the placenta of the second child. And here is especially exemplified the duty of never applying traction to the umbilical cord, until the nature of the labour in respect to pluralities shall have been ascertained.

Plural births are usually exceedingly tedious in their progress, in proportion to the apparent exertions that are made by the uterus, and to the violence of the accompanying constitutional symptoms. In some cases, bleeding may be necessary to subdue excitement, and in others, where the pains are observed to be more than ordinarily languid, it might be requisite to exhibit a dose or two of ergot of rye. If the subject of the case shall have had children previously, the birth of the first child of a suspected case of twins might often be quickened and completed by having recourse to the forceps; and cases of this kind might be made available by a young practitioner, for accustoming himself to the use of that instrument.

It often happens in twin births that a long interval takes place between the birth of the first child, and the commencement of uterine action for the expulsion of the second; and as the placenta of the first, or a section of the entire placental mass, must be allowed to remain in the uterus until the second child shall have been born, it is obvious that this interval must be considered as forming an anxious time both for the practitioner and his patient; and a rule should be found which might guide the profession to the best practice in such cases. After the patient shall have sustained much severity of suffering, and experienced considerable exhaustion from the exertions already undergone, it is reasonable that she should enjoy a respite of an hour or two. Whilst this solace is being indulged in, nature has an opportunity of preparing for the renewal of her



efforts; and this indeed is the course of events frequently observed in twin births. There are however unfortunately exceptions to this rule; and the interval is protracted beyond the limits of positive safety. In such cases, what should be the duty of the practitioner? Should nature be left unaided for an indefinite period; or should art interpose to promote the return of pains with a view to the accomplishment of the second birth? It was, not long ago, the doctrine of an obstetric school in this town, that the practitioner should abstain from all interference; and the author can well recollect when he was frequently consulted by persons who had been pupils of that school, for cases of hæmorrhage, which appeared to him to have arisen as results of this practice of long-delayed interference after the birth of the first child. In one case, especially, he was requested to see a patient on the third day after her delivery of the first of twin children. She was in a dying state from loss of blood. The account made out was, that a consultation had been held late on the day after the birth of the first child. It was determined to surrender the case to nature, and to wait her BEST time, as the rule was emphatically expressed. On the day following, another consultation was held, and the same conclusion come to. On the third day the circumstances already stated occurred, with the addition that the patient died from loss of blood after the spontaneous expulsion of the second child, which was in a highly putrid state.

For thus waiting for the uncertain return of pains there can be no sufficient reason; whilst this dreadful liability to hæmorrhage would appear to suggest a very strong motive for the adoption of the opposite practice. Moreover, there is the additional reason for interference, that the aid required is found most simple, and usually very easily and happily applied. If the second child is found to present its head, all that might be usually required would be to rupture the membranes; which would probably in the course of a short time be followed by the renewal of pains. If not, however, the practitioner would have to pass his hand, and bring down the inferior extremities; which, at all events, he would have to do in a cross presentation of the second child. In the greater number of cases, the anxious suspension of the labour would thus be speedily put an end to. The principal precaution to be adopted in the management of these cases is, to give the uterus sufficient time to accomplish its object, as much as possible by its own unaided efforts, after the

turn shall have been effected. In other respects the labour must be conducted according to the indications furnished by its presentation. It should be observed, that one practical point must be specially attended to in the management of the second birth, viz. that the head should be conducted through the pelvis, not only with proper attention to the relations of its dimensions to those of the parietes of the pelvis, but also without any unnecessary loss of time, lest by the delay the umbilical cord should be exposed to fatal pressure. It is for want of due attention to this rule that we observe such an excess of the deaths of the second of twins, in obstetric tables drawn up from the practice of females; who, it is well known, are exclusively employed in the ordinary practice of many public institutions.

The placenta of twins, if not already spontaneously expelled, are to be withdrawn from the uterus together. The manœuvring of this is upon the whole easy, and consists in applying moderate traction, first to the cord of the child first born, and then to that of the other; due pressure at the same time being applied to the fundus of the uterus. This attempt, however, should not be made prematurely, or before the uterus shall have had full time to have gathered together its parietes into pretty firm contraction, by the action of its natural tonicity. The practitioner should be aware of the liability after twin births to a greater amount of lochial discharge, than is usually encountered after single births; not to add, that he must be prepared, in many cases of this kind, to expect a lochial discharge which shall amount to an actual hæmorrhage. The best protection against a profuse loss of blood in these cases, is to keep up, during the whole progress of what we have called the second labour, a moderately firm pressure upon the abdomen.

Cases of triplets and quadruplets are to be managed on precisely the same principles as those of twins. The subjects of all these births will require more than ordinary professional attention during the subsequent recovery.

OF LABOURS COMPLICATED WITH PROLAPSION OF THE UMBILICAL CORD BEFORE THE HEAD OR OTHER PRESENTING PART OF THE CHILD. —If we assume the head to be the presenting part, the practitioner has to consider, 1. The situation of the head relatively to the pelvis. 2. The fact of the liquor amnii having or not having escaped. 3. The amount of development and other conditions of the orifice of the uterus. 4. The state of the vagina and os

externum. 5. The character, if known, of the patient's former labours, as to the duration of their several stages.

The umbilical cord cannot very well be said to prolapse, until after the rupture of the membranes, although it may often be felt coiled within the more accessible part of the membranes before they are ruptured. In this case, the labour may be presumed to be going on prosperously. The moment, however, the rupture takes place, the portion of cord, felt to pulsate antecedently to that result, will instantly become prolapsed. On the knowledge of this fact, the practitioner should anxiously wait for an opportunity to introduce his hand, and proceed without loss of time to bring down the feet. During the change of position of the child effected by this operation, it might, in the majority of instances, be expected that the portion of cord previously felt presenting might be carried into the interior of the uterus, and therefore far enough out of danger.

So long as the head of the child shall remain above the brim of the pelvis, in cases where the orifice shall be sufficiently dilated to admit of the easy introduction of the hand, that expedient, in cases of actual presentation of portions of the cord, might be safely recommended as preferable to all other modes of relief. Should, however, the head have descended to any considerable depth into the pelvis, it is manifest that the operation of turning cannot be either conveniently or safely performed; and if attended with much difficulty, it is equally obvious that the operation itself might have the effect of compromising the safety of the circulation in the cord; therefore some other method might answer the purpose better. This might perhaps be found in certain manœuvres for pushing the prolapsing coil of cord above the head, and causing it to be retained there, until the latter shall have commenced to make its exit through the os externum. Mauriceau proposed, for the attainment of this object, that the prolapsing cord should be enveloped in a pledget of old linen, and the whole pushed up above the level of the presenting part of the child's head. The objection to this practice has been, that it has seldom sufficed to prevent the cord from almost immediately descending again.

Others have since recommended that the prolapsing cord should be pushed up beyond the head, and a piece of dry compressed sponge introduced, and carried high up immediately after it; with the intention that the sponge becoming expanded by the absorption of the fluids to which it would thus become



accessible, might act as an obstacle to the further prolapsion of the cord. In the application of this expedient, there is an obvious danger lest the compressed sponge might itself be made to produce a fatal pressure upon the cord.

The author, some years ago, proposed to carry up the prolapsed portion of cord, in the case here supposed, beyond the head, by attaching it to a thin flexible spatula, slightly curved, and covered with thin soft leather, so as to adapt it to the curve of the head, at the same time without occasioning any inconvenience to the parts lining the pelvis. By keeping up a steady bearing upon the prolapsed cord by means of this simple instrument, whilst the head might be permitted freely to pass, the circulation would in all probability be secured against fatal pressure. See plate xi. fig. 1. of the Atlas.

If we suppose the head to have descended deeply into the pelvis, preceded by a portion of prolapsing cord, and if it be a matter of previous knowledge with us that the latter stages of the patient's former labours had been quickly performed, it should be considered, upon the whole, the best practice not in any way to offer assistance. But if, under similar circumstances, there might be no expectation of the case being speedily consummated without artificial aid, such assistance might be most conveniently extended to it by means of a modification of the forceps, which the reader may see represented in the Atlas, plate xxxix. The long blade would have to be introduced over the side of the child's head, opposite to that along which the portion of umbilical cord might be found prolapsing, whilst it should be antagonized by the short blade, which an adroit practitioner would find no difficulty in applying in such a way as to prevent the umbilical cord from being exposed to fatal compression. In this way the birth of the head might be no doubt considerably accelerated, and probably sufficiently so to ensure a living birth.

Should a portion of the cord be found prolapsing, the orifice of the uterus being still in a rigid state, and but moderately developed, the head at the same time presenting, we should have but slender hopes of ensuring a living birth; and still less if we suppose the whole course of the parturient passage to be similarly affected. The best security in such a case would be to promote the relaxation of all the parts by ample bleeding; and then to quicken the action of the labour by the exhibition of the ergot of rye.

In prolapsion of the umbilical cord under the circumstances of cross presentations, it should be considered the most important rule of practice not to attempt the operation of turning too soon; nor before an ample development of the tissues of the parturient passage shall have taken place. But, under the best circumstances, it must be acknowledged that the operation in question too frequently compromises the circulation in the cord; whilst this result might be expected as still more likely to happen, if we suppose a portion of it to have been previously prolapsing. The duty, and at once the better policy of the practitioner, under such circumstances, would be to communicate to the parties most interested in the event, a guarded, if not an unfavourable prognosis.

It is not an uncommon thing to meet with cases of breech-presentations with portions of the umbilical cord variously coiled around the presenting part. All that art can do in such cases is to defend the navel-string against pressure from the parietes of the passage, and, as far as may be practicable and safe, to accelerate the labour. After the expulsion of the breech, it will be often in the power of the practitioner so far to disentangle the cord as greatly to diminish its liability to further pressure.

OF LABOURS COMPLICATED WITH DANGEROUS FAINTINGS.—The epithet dangerous is here added to the term expressive of the symptom now to be treated of, to distinguish it from the feelings of oppression and languor frequently complained of during the progress of almost all sorts of labours. It is now intended to designate absolute syncope, consequent upon profuse hæmorrhage and other causes of profound and fatal exhaustion. The nature of the faintings here supposed may perhaps be best communicated to the reader by reference to an example or two of cases of this kind. A poor woman, in the practice of the Maternity Charity, after having been six or eight hours in labour, had occasion to place herself on the chamber utensil for the purpose of emptying the bladder. During this effort she fell suddenly upon the bed, and in a moment was a corpse. Previously to this accident she was in good health, and not at all exhausted by the labour; but it was supposed by the people about her, that the waters might have been evacuated during the trifling exertion she had then made. Upon inspection of the body, no circumstance calculated to throw light upon the cause of the death could be discovered. No rupture of a vessel or any effused fluid could

be seen in any part of the body. The vessels of the brain were not in a state of engorgement, nor could there be found any departure from natural or healthy organization about the heart or any of the great vessels. The author dwells upon cases of this description rather as facts which are known to have taken place in the practice of experienced men, which may be made available in the absence of some satisfactory cause for the explanation of similar misfortunes in the practice of others, than with the view of elucidating their actual nature.

An unmarried woman of about two-and-thirty years of age was the subject of an exceedingly distorted pelvis. She had been in labour seven or eight days, when the author was requested to visit her. After having explained the nature of the case, and represented to her friends her alarmingly dangerous condition from the state of inflammation of the parts within the pelvis, and from the severe nature of the accompanying constitutional symptoms, he was induced to undertake her delivery. He succeeded pretty speedily and without much difficulty in opening the head, and then gradually, by means of the guarded crotchet, in bringing it down into the cavity of the pelvis. In the course of about two hours from the commencement of the operation the entire child was withdrawn, and was immediately followed by the placenta. When the delivery was thus completed, the patient appeared for a few minutes to triumph over the severity of her sufferings, and expressed herself with great gratitude and cheerfulness. But presently afterwards, somewhat quickly changing her position, and adjusting herself for the repose which she now hoped to enjoy, she was observed to sink suddenly into a fainting state, and in a loud and dismal voice called out "Give me some air! give me some air!" and immediately expired. On an attempt being made to give her a spoonful of brandy she was ascertained to be perfectly dead. It naturally occurred to the author, that her death might be ascribable to some serious injury which she might have sustained from the force employed in the operation of embryotomy. On examining however the uterus on the subsequent day, there was no evidence found that a single fibre of any of the tissues interested in the instrumental part of the labour had suffered injury. The abdominal surfaces, as also those of the bladder, both inside and out, and extensively those of the intestines, were found suffused with variously coloured proofs of



active inflammation ; but no blood nor any other fluid was found lodged in any of the cavities of the body. For such as the former of the above cases, the author is not aware that he can recommend any thing in the way of prophylactic treatment, and for such as the latter only an earlier interposition of art. Faintings from loss of blood will be considered at length and with more propriety hereafter.

OF LABOURS ACCOMPANIED OR IMMEDIATELY PRECEDED BY PUERPERAL CONVULSIONS.—Women are subject to two principal varieties of convulsions ; viz., epileptic and hysterical. But those which occur during the puerperal state are of the former variety ; or at least exhibit a greater analogy to those of epilepsy than to the ordinary forms of hysterical convulsions. The author cannot recognise the existence of the variety of convulsions which Dr. Dewees has denominated apoplectic, as a distinct form of the disease ; as in all cases the apoplectic appearances are to be considered as a part or essential accompaniment of the malady.

The convulsions which take place during the whole of the first eight months of pregnancy are derived from an hysterical source. Whereas, those which present themselves during the last month, and more especially during the latter weeks of gestation, are more allied to those of epilepsy, and are technically called puerperal convulsions, because they are precisely of the same character with those which occur during labour and the puerperal state. So like the convulsions of epilepsy are the phenomena of this disorder, that the symptoms would seem to be almost absolutely identified ; excepting that, in puerperal convulsions, the author has never been able to trace the sensation called *aura epileptica*.

Overfulness of the vessels of the head seems to be the most frequent proximate cause of the complaint ; although from the presence of the actions of pregnancy, we may well presume a great predisponency to convulsions to exist during that state. Pregnancy is usually and very justly considered a state of plethora ; and it may be readily presumed that the balance of such plethora may be determined towards the head ; inasmuch as the great vessels of the abdomen must be supposed, during the latter weeks of gestation, to be liable to much impediment to their action from the pressure of the gravid uterus. Some writers have ascribed puerperal convulsions to irritation, which they consider to be excessively accumulated during advanced pregnancy ; and

which therefore, from this morbid increment, they think may be sufficient to account for the production of convulsions. However that may be, there can be no question that the origin of the disease must be traced to the head.

Puerperal convulsions occur antecedently to and during the excitement of parturition. If antecedently, we must suppose a greater predisponency to the malady : and in practice we may observe such predisponency to be identified with an oppressed and congested state of the circulation in the head. As a timely cognizance of the symptoms indicating a strong predisposition may lead to the adoption of the most useful and effectual prophylactic treatment, it may be proper to enumerate them with some degree of minuteness. They are all indicative of an increased determination of blood to the head, and consist of—a sense of fulness even to vertigo ; intense pain in a part or of the whole of the head ; confusion of the understanding ; a sense of ringing and of other noises in the ears ; temporary confusion or loss of the power of vision, and temporary abolition of the power of thought, and even of sensation.

The above symptoms will sometimes occur independently of every kind of excitement, and for some weeks before the accession of labour. But on the abstraction of blood freely, such, for example as twenty or five-and-twenty ounces, the patient will often experience the amplest relief, and arrive at the full period of her gestation without experiencing any repetition of the same symptoms. The author considers that where the above premonitory symptoms are fairly and fully reported, the disease might probably in ALL cases be anticipated and prevented by an adequate abstraction of blood.

In addition to the above symptoms, which are indicative of the immediate approach of puerperal convulsions, may be enumerated several constitutional indications of a tendency to them ; such as a short stature, short, thick neck, and large head ; as also certain predisposing habits, such as those of drunkenness and of free living ; neglect of personal exercise ; indulgence in strong tempestuous passions ; long vigilance from whatever cause ; immoderate pursuit of exciting pleasures, including all departures from a sober and virtuous life.

When the disease occurs during labour, we may presume that a lower predisposition to it may suffice to admit of its invasion ; inasmuch, as at that period the exciting causes

are more intense. And hence we usually observe that it seldom occurs during labour, until the patient shall have arrived at a state of considerable feverishness, and most frequently of very great excitement of the heart and arteries. When convulsions of this class occur during labour, the following may be observed as the ordinary precursory symptoms of the paroxysm: namely, an excited state of the circulation; a gradual accession of cephalic symptoms, such as of those which have been already enumerated; great excitement of the heart and arteries; immense irritation and restlessness; great development of heat, unaccompanied by adequate moisture on the surface of the body; unusual strength and fulness of the pulse; engorgement of the vascular structure of the face, producing much turgescence and flushing; an approach to, or actual delirium; great fulness and wildness of the eyes, often accompanied by an expression of extreme distress, or else of a state approaching to fatuity; perception of scintillations of light, or the fancied presence of divers other bodies; and, in many cases, a sudden seizure with violent pains in the abdomen, differing in character, and accessional to those of labour.

A practitioner who should duly appreciate the above assemblage of symptoms, would be able in the greater number of cases to prevent the establishment of the disease by active treatment. From neglect of such practice, a paroxysm might be expected very speedily to take place; which would be immediately followed or identified with sudden loss of consciousness and convulsions. The latter symptom may sometimes be observed to begin with a slight twitching of the muscles of the mouth, which however would almost instantly terminate in universal convulsions. On the onset of a fit the patient makes a kind of hisping noise with her mouth, as if to retract her saliva. The eyes at first become motionless and fixed, but in a moment afterwards they are horribly distorted and convulsed, while at the same time the muscles of the limbs, as well indeed as those of the whole body, are thrown into alternate contraction and relaxation. After an uncertain duration of the paroxysm, the convulsions subside; and the patient sinks into a state of quiescence and insensibility.

The duration of a paroxysm is uncertain; in some cases the patient is observed to cease to be agitated by convulsions in the course of a few minutes; in others, she may continue to be the subject of them for half an hour or forty minutes, or even for



a much longer duration of time. Authors have spoken of cases where the disease has presented itself very suddenly, and without having been preceded by any premonitory symptoms. In some such cases, the attention of the practitioner and other attendants is represented as having been first roused to the danger by a sudden alteration of the countenance, although immediately before the patient might be engaged in cheerful conversation, or perhaps been simply adjusting her position, or rising to respond to a call of nature; or in some very few cases, the bed has been found suddenly to creak from the action of the convulsions, without any previous indication. The apparent suddenness here presumed may often, no doubt, be ascribed rather to want of care on the part of the practitioner, and inattention to symptoms which had actually existed, than to the fact that such symptoms had not occurred.

When a paroxysm of puerperal convulsions, whether antecedently to or during a labour, takes place, the friends or other persons in attendance are usually thrown into a state of much confusion and dismay; and they naturally expect that the practitioner should instantly take measures to allay the storm. The first thing to be done is to secure the tongue from being seriously bitten; which is to be effected by thrusting something between the teeth that may suffice to keep the jaws asunder without impeding respiration. All impediments to the free course of the blood in the great vessels of the neck, and also in those of the extremities, should be forthwith removed. But the first and great curative measure to be adopted, and which should be had recourse to as soon as the patient can be placed in a secure position for the operation, SHOULD BE THE FREE ABSTRACTION OF BLOOD. On account of the convulsions by which the great muscles of the neck are agitated, as well indeed as those of the whole body, it might prove difficult to secure the jugular vein, were it to be incised; and therefore, as a general rule in these cases, the blood should be abstracted from the arm.

The quantity likely to suffice for the relief of a case of only threatened convulsions, might amount to between twenty and thirty ounces: but if the convulsions have been long established, or have taken place very suddenly, the practitioner would have to take away perhaps thirty or forty ounces of blood, or EVEN FIFTY, in cases of great intensity of the symptoms. The rule should be that the pulse must be reduced into a state of

mellowness and softness before the arm is tied up. The violence of the convulsions will at all events subside by this procedure; although in many cases, lighter spasmodic twitchings might exhibit themselves for some time afterwards. In a few extreme cases, in which the author has from time to time been consulted, he has considered it necessary to order a second bleeding after the lapse of two or three hours subsequently to the former one. But he never recollects having recommended for the second bleeding the abstraction of more than about fifteen ounces of blood.

The treatment by large bleeding in these formidable cases may be generally so much depended upon, that very few persons who are made the subjects of it are not ultimately saved by it. In the time of Dr. Hunter, as was reported by that eminent practitioner himself, *MS. LECT.*, the greater number of women who were attacked by puerperal convulsions died: whereas in the present day, the recoveries are in the proportion, at least, of nine out of ten cases that are made the subjects of this treatment.

After full bleeding shall have been premised, the patient's head should be shaved and placed upon a bladder of iced water; the application of which should be renewed from time to time according to the rapidity of the re-accumulation of heat in the head. The parts of the head which might remain inaccessible to cold thus supplied, should have their temperature reduced by evaporating lotions in the usual manner. The state of the uterus should next be made an object of attention. In a case of convulsions occurring before the accession of labour, the orifice of the uterus would probably be found closed; nor would any indication of labour be presented. The patient might recover her consciousness, the gestation might proceed for a week or two longer, and a living child be born after a perfectly natural labour at the termination of the full period of pregnancy.

In some cases, should the orifice of the uterus be found in any degree dilated, it would thence be inferred that labour had declared itself, and that it would go on as under ordinary circumstances. In that case it would be best to wait until the pains should become more active. In the progress of such a complication, we can do nothing more in aid of the parturient process than we usually do in our conduct of an ordinary labour. We have, however, to pay great attention to the state of the head, and not unfrequently to repress the tendency to a renewal of the convulsions by a mode-

rate second bleeding. Should in the mean time the patient possess or recover the power of swallowing, her condition might often be benefited by the exhibition of a full dose of calomel and jalap; but in the absence of the power of deglutition, the rectum might be emptied by an active enema. The state of the bladder should be examined from time to time, and, if necessary, its contents drawn off with the catheter.

If we suppose the convulsions to have arisen in consequence of the violent actions of parturition, and upon examination find the orifice of the uterus in a state of extensive dilatation, and the presenting part wedging itself with great difficulty within the cavity of the pelvis, or but imperfectly engaged within its brim; we should have to deliberate, first, as to the expediency of proceeding forthwith to the delivery; and, secondly, as to the class of instruments we should have to employ to effect that object. It is obvious, in cases of retarded labour from want of sufficient capacity of the pelvis complicated with convulsions, that the employment of the forceps might be attended with such aggravation of the symptoms, as to make it the duty of the practitioner, after very cautiously trying what he might be able to do with that instrument, to effect the delivery with the perforator and crotchet. To conciliate him to this painful duty he should duly estimate the fact, that puerperal convulsions are very often followed by the death of the child, independently of any use whatever of instruments.

Some difference of opinion has existed as to the use of opium in puerperal convulsions. As far as the author feels himself warranted by experience in entertaining a positive opinion on this subject, he feels disposed to recommend the exhibition of a full dose of opium AFTER ample bleeding; provided the patient might be in a situation to swallow it. And if not so situated, he would advise the administration of an opiate enema of proportional strength, should it not be required as a more imperative duty to exhibit a purgative enema, as has been already adverted to. Stimulating the nostrils with burnt feather; dashing the face or other parts of the body with cold water; chafing the limbs of the patient by frictions, or restraining their movements with undue force, are items of treatment which should rather be omitted than employed, as being more calculated to produce additional excitement than to mitigate the patient's symptoms.

From what has been already stated, the reader may infer that



the prognosis in ordinary cases of puerperal convulsions is to be considered as favourable under the circumstances of a judicious treatment. When occurring in the absence of labour, they may be subdued at a more moderate expense of depletion than when produced by the excitements of a severe and tempestuous parturition. If the proper treatment shall have been for many hours neglected, and the case should present the symptoms of an actually collapsing state, the issue should be represented as uncertain, if not absolutely hopeless. Convulsions complicated with profuse hæmorrhage, and, *a fortiori*, if the loss of blood shall have been very great, should be considered as harbingers of a rapidly approaching death, the convulsions in that case being a part and parcel of the dying state.

OF HÆMORRHAGE COMPLICATED WITH UTERINE GESTATION, PARTURITION, AND THE PUERPERAL STATE.—As a matter of convenience, although not adopted as a strictly logical distribution of the subject, we shall here consider hæmorrhage under the heads of:—1, abortion; 2, of premature labour; and 3, of labours complicated with hæmorrhage at advanced periods of gestation.

Abortion is rarely effected without hæmorrhage from the uterus. It has been fancied by authors that certain periods of pregnancy are more liable to abortion than others; and that the sixth week and the third and seventh months are especially subject to this liability. Boerhaave asserts that in nine out of ten cases of spontaneous abortions, the misfortune takes place at periods corresponding with the menstruating habits of the patient. The author, however, after having paid close attention to cases of this kind, has found it exceedingly difficult to verify any of those hypotheses; although sometimes very confidently represented as so many facts.

Abortion or premature labour may not prove an inevitable consequence of uterine hæmorrhage. It is well known, on the contrary, that a show or slight appearance of blood may be indicated at an early period of gestation,—at a period, for example, corresponding with the time that menstruation would have occurred, had conception not taken place,—without involving the after pregnancy in much danger.

Again, blood may be discharged in a small quantity at the time of quickening, without much danger to the progress of the gestation: and indeed such appearances may occur at any period

of gestation in trifling quantities, provided the discharge be not attended with expellent or parturient action of the uterus.

It has been supposed that very trifling discharges of this kind in the earlier months may have the neighbourhood of the orifice of the uterus for their source; it being presumed that the decidua might not at such periods be perfectly completed in its structure, and sufficiently guarded within the orifice of the uterus. Others have supposed that inconsiderable hæmorrhages may have some straggling vaginal branches of the uterine arteries for their source; these being supposed to acquire an unusual fullness during pregnancy, from their great uterine trunk being more than ordinarily engorged for the purposes of the gestation. Hæmorrhages from the uterus during pregnancy should generally be considered as an effect of detachment of parts of the decidua in the first two months, and of portions of the placenta afterwards. And hence the propriety of extreme caution in forming and communicating our prognosis, after pregnancy shall have once become complicated with discharges of blood from the uterus.

The loss of a few ounces of blood, which shall have a part of the decidua for its source, will speedily become productive of cessation of vital action in the ovum, and will thus cause the devitalised ovum to become a source of irritation to the uterus. Abortion, however, or premature labour, should not be considered as an inevitable consequence of uterine hæmorrhage, it being to be presumed, as already intimated, that an appearance of blood may be presented at an early period of gestation; a period, for example, which might correspond with the time when menstruation would have occurred had conception not intervened, without involving the fate of the pregnancy in much danger. It is well known that blood may also be discharged in a small quantity at the time of quickening, without necessarily exposing the progress of the gestation to the danger of being even suspended; and finally, it is equally a fact that blood, in similar quantities, may escape from the genitals at any period of gestation, without necessarily involving the fate of the ovum, if such discharges be NOT ATTENDED NOR FOLLOWED by parturient action of the uterus. After all, it must be confessed that discharges of actual blood from the uterus, in any quantity, during pregnancy, should be considered as sufficient to excite more or less alarm.

It has been observed, that some women are much more liable

to become the subjects of abortions than others; although we find it very difficult to say what is the precise state of such subjects constituting the predisposition. The following are usually enumerated as the most important predisponent causes:—

1. An easily excitable character of the heart and arteries.
2. A plethoric state of the sanguiferous system.
3. Great susceptibility of the nervous system to all sorts of impressions.
4. Certain morbid conditions of the uterus itself variously denominated, weakness, rigidity, excessive tonicity, too much lubricity, etc., of that organ, according to the theories of pathologists at different periods.
5. A febrile condition of the system from the presence of acute or chronic diseases.
6. A reduced competence of the individual for vigorous gestation on account of advancing age, or in consequence of having already borne many children.
7. Constitutional cachexia, from whatever cause or causes arising.
8. The habit of miscarrying. This habit, indeed, is one of extraordinary agency. Mr. Young, who first filled the chair of midwifery at the university of Edinburgh, MS. LECT., states that he once had a patient who miscarried thirteen times in succession, but who went to her full time with her fourteenth child; and Schultze refers to a case in his practice of a woman who miscarried two-and-twenty times, at or about the same period of gestation.

On the other hand, all experienced practitioners of any standing have had opportunities of meeting with cases of extraordinary RETENTIVENESS of the ovum. Women are sometimes known to take the most deleterious drugs with the intention of inducing abortion; but are not able to effect their purpose. The author once knew a lady who was run away with by a spirited horse during the third or fourth month of her pregnancy; and who, after having kept her seat for some time, was thrown upon a heap of large angular stones, which had been deposited in great masses along the side of the road, for the purpose of repairing it. From this fall she sustained several wounds and bruises, was taken up in a state of insensibility, and conveyed home, a distance of more than a mile, before she recovered her consciousness. This lady, although she kept her bed for weeks subsequently to her accident, went to her full period of gestation. Mauriceau mentions the case of a woman who, when at the seventh month of her pregnancy, fell from the window of a third story, in attempting to make her escape from a fire. In this



fall she broke a bone of the fore-arm, dislocated her wrist, and bruised her whole body; and yet she was happily delivered of a well-grown living child, at the full period of gestation. Mauriceau, vol. ii. obs. 242, p. 198.

The occasional causes of abortion are very numerous, but may perhaps be comprised within the following list: 1. All circumstances whatsoever calculated to excite the circulation to inordinate action, such as laborious occupations, fatiguing exercises of any kind, long walks, rough riding on horseback or in carriages; and, in short, excessive physical exertions of any kind. 2. All influences productive of diseased actions either of the general or uterine system. 3. Diseased states of contiguous or neighbouring organs, as diarrhœa, tenesmus, dysentery, etc. 4. The action of different classes of medicines, as emetics and drastic purges; as also of certain specifics and emenagogues, as of mercury in full charges, savin, ergot of rye, etc. 5. Paroxysms of violent and sudden passions. 6. Strong physical or moral impressions, as from burnings, scaldings, tooth-drawing; terror, and sudden surprises, as from thunder, cannonading, horrible sights, etc. 7. Violent and inconvenient movements of the body, as those of lifting heavy bodies, attempting to reach things too high, or of endeavouring to reach to too great a distance, etc. 8. Immoderate indulgence in venery.

When the predisposition to miscarriage is great, the occasional causes may often be very inconsiderable. Abortion necessarily implies a separation of the ovum; and this may be produced proximately by mechanical interference, as by the stilette; by the rupture of the vascular tissue of the ovum in consequence of the application of any of the occasional causes just enumerated, and by strong muscular action by whatever causes excited.

A natural effect of uterine contraction, and a necessary consequence of it, is a development of the cervix uteri. This development is a gradual process in healthy gestation, and at the full period; but in abortion, it is often effected suddenly, rapidly, and violently. When the action of gestation ceases, it may at any time be followed, and is usually very soon succeeded, by expellent contraction of the uterus; but when such expellent contraction has been instituted, the author believes that no chance will remain for the permanent retention of the ovum; and that, sooner or later, premature expulsion will inevitably follow. Under these circumstances the practitioner's duty will

chiefly consist in guarding against excessive losses of blood, which may at any time occur after even a partial separation of the ovum; and afterwards in carrying the patient safely through the consequences of those exhausting hæmorrhages, which seldom fail to present themselves when the abortion takes place subsequently to the third and fourth months of gestation.

When the action of gestation ceases, it has been already intimated that the death of the foetus is an inevitable consequence. That result may be expected to be almost immediately followed by a cessation of the ordinary sympathies of gestation, and by the following indications of a devitalized pregnancy, viz. 1. Certain impressions, or a sort of consciousness of a change of circumstances in the condition of the gestation, more distinctly felt by the party herself than easily conveyed by her in words to her medical attendant. 2. Recession of the milk and consequent flaccidity of the breasts. 3. A sense of coldness of the abdomen. 4. A sense of more than ordinary weight of the uterine tumour, accompanied by the feeling of its falling from one side to the other of the abdomen, as the patient may have occasion to change her position, a result called by French writers *BALLOTTEMENT* of the gravid uterus. 5. Want of motion of the child subsequently to the usual period of quickening. 7. *Stillicidium* of a watery and ichorous discharge from the uterus.

The cessation of the action of gestation is in many cases followed by expulsion of the ovum in a few hours. In some others, however, many days, or even a fortnight, are suffered to elapse before uterine contractions supervene and the action of abortion is established; whereas, in some rare cases, the blighted ovum has been known to be retained indefinitely for many weeks or months. During the first few hours of a miscarriage the discharge from the uterus is usually trifling in quantity, like that of an ordinary menstruation; but in proportion as the uterine contractions become more urgent, and the separation of the ovum more extended, the hæmorrhage gradually increases, until the process shall have been consummated.

OF THE TREATMENT. The indications of treatment are, 1st, if possible to prevent abortion from taking place if it be only threatened; and 2nd, to conduct the patient safely through it when its occurrence is unavoidable.

In meeting the first indication we necessarily presume upon the *LIABILITY* of our patient to become the subject of miscarriage,

and accordingly have to adapt our measures of prevention to the presumed cause. To qualify ourselves for this duty we have to attend minutely to the history of the patient's former miscarriages; to her peculiar character as to health and constitutional strength; to her condition when she became pregnant; as well as to any changes or accessional susceptibilities to which she may have become subject since the date of that event. In plethoric habits, and in persons subject to copious menstruation, the diet should be much abridged, and in some cases positively restricted to vegetable food. If, together with fullness of habit, the patient shall have brought herself into jeopardy by faults of her own, as very frequently happens in first gestations, from ignorantly indulging in diverse pleasurable excesses, bleeding should be had recourse to as a first measure; and should be repeated once, or more frequently, as the demands of individual cases might indicate. Added to this should be enjoined a more or less absolute REST, until the progress of the gestation shall have become more settled.

All circumstances calculated to raise the temperature of the body should be most cautiously avoided. If compatible with the opportunities and moral circumstances of the patient, ablutions with cold water, and injections of moderate quantities of it into the vagina, repeated three or four times in the course of the twenty-four hours, might be attended with a considerable diminution of the phlogosis of the uterine system. Young and vigorous subjects, if also plethoric, as the greater number of women may be said to be in their earlier pregnancies, and especially the recently married, should be restrained to great moderation in their use of the rights of matrimony, or, if necessary, be made to abstain altogether from its privileges.

For persons addicted to the habit of miscarrying, the use of the cold or tepid bath, affusion of cold water or the shower bath, and the douche, consisting of plentiful affusion of cold water over the loins, have respectively been recommended as a means of improving the general strength and tone of the uterine system, and therefore of diminishing the weakness and of shielding the susceptibilities of delicate subjects, who are presumed to be most predisposed to the action of abortion. If it be determined to have recourse to cold bathing, the capacity for bearing it with impunity should be formed by the previous use of the tepid bath, for a few days. It is considered an established rule in the



management of pregnancy, especially when attended by any indications of fullness of the uterine system, not to recommend the use of the WARM BATH. If great uterine irritation be a prominent symptom, we generally advise venesection, and the use of mild laxatives conjoined with hyoscyamus.

Added to such other measures as might be deemed useful in these cases, rest in a horizontal position should be enjoined as an indispensable part of the treatment. But in some cases of an obstinately-established habit, we find that all precautions of this kind too often fail of success; and in his anxious endeavours to interrupt the habit, the author thinks he has more frequently succeeded in the attainment of his object by producing specific changes in the constitutional actions of his patients by means of mercury, than by any other measures whatsoever. He has also more frequently succeeded in improving the constitutions of delicate and cachectic subjects by the administration of mercury in the absence of pregnancy, than by any other treatment. He has generally been careful in these cases to limit the action of the remedy to a moderate constitutional influence, kept up however for two or three months; without allowing it to produce the disagreeable and often very painful results incident to a full salivation. The patient in the mean time has been recommended to abstain from the means of impregnation.

Sulphureous vapour baths and chlorine baths might also be properly recommended to meet the same prophylactic indication. This power must likewise be made available for its purpose in the absence of pregnancy. If it should be known, or supposed probable, that the habit of abortion was the result of a venereal taint in the system, experience proves that it cannot be expected to be subdued without the use of mercury. The practitioner, however, under such circumstances must be very cautious as to his choice of the party to whom he should exhibit this remedy; inasmuch as the husband is much more frequently the primary cause of the repeated miscarriages thus occasioned than the wife herself.

TREATMENT OF ABORTION WHEN THREATENED.—It has been already more than once intimated that the result of miscarriage cannot be prevented when the action of gestation shall have ceased. But certain indications are sometimes exhibited, which should be considered as so many warnings of danger, and which accordingly might be advantageously subjected to treatment. Amongst

these we may mention, 1st, Appearances of blood, such as women call shews, presenting themselves irregularly, accompanied by slight pains of the loins, upper parts of the thighs, and pubes. This symptom should at once be made the subject of proper treatment; for if not, it may very soon be followed by the characteristic expellent pains incident to abortion. The proper remedies will of course be indicated by the state of the general health, supposed condition of the circulation, state of bowels, and other circumstances. In most cases of this kind, venesection, and rest in the recumbent state, abstemious diet, and abstinence from all means of excitement of the uterine system, will require immediately to be put in force.

A sanguineous appearance after sexual intercourse may be mentioned as another warning symptom. This symptom is an evidence either of great weakness or of great functional excitability of the uterus; and if it occur at an early period of gestation, it occasions uncertainty as to the actual fact of pregnancy.

Some specific irritation, certain impressions which a patient may speak of, affairs of her own experience, without being able to describe them, sometimes exhibit themselves as indications of threatened abortion. The treatment in such cases will, of course, depend on the character of the symptoms described, on the state of the general health, on the patient's regularity and equableness of temper, on her disposition to conform to the rules and regulations prescribed to her, and on a variety of other circumstances. In such cases the treatment by bleeding will seldom admit of being neglected. Opiate injections into the vagina might be advantageously had recourse to, together with rest in a recumbent state.

Excited states of the circulation often furnish a very useful indication of the liability to abortion. Venesection of course is here also to be considered as a principal remedy. When therefore we encounter the following symptoms in evidence of an excited, or even of a congested state of the circulation, viz. a strong, quick, frequent pulse; palpitation of the heart; a sensation of fulness in the circulation of the head, with frequent throbbing of the temples; these symptoms, in the mean time, being accompanied or alternating with pains in the loins and region of the uterus; bleeding should be at once resorted to as the most powerful prophylactic within our reach. The bowels, if

constipated, should be relieved by blue-pill and colocynth, assisted by mild demulcent enemata.

When we cannot prevent abortion, the great indication is to conduct our patient through it with safety. The first object of our attention should be the hæmorrhage, which almost invariably accompanies and succeeds to a detachment, however trifling, of the ovum from the uterine surface. The routine practice adopted, even AFTER the institution of the process of abortion, is to employ venesection. The reader will observe, that bleeding has just been recommended as a most efficient PROPHYLACTIC measure, in cases of threatened abortion. But when that process has once commenced, we have seen that its completion cannot be prevented: and if that doctrine be well founded, it is obvious that the abstraction of blood must be the most improper practice that can be recommended; inasmuch as the loss of blood is the great evil which in the sequel of such a case we should have especially to guard against. Once decide the fact that the abortive process is established, and we conclude, with equal decision and confidence, that the treatment by bleeding must be immediately stopped. It being impossible to foresee what quantity of blood shall escape before the miscarriage might be completed, any reduction, of the general mass of blood yet remaining in the system would be so much positive addition to the patient's existing misfortune.

Hence the duty of diminishing the accompanying discharge by all the means in our power. For this purpose we exhibit the acid draughts usually administered on such occasions, together with nauseating doses of emetic medicines. The same object is also attained by the application of cloths, dipped in vinegar and water, to the external genitals and the neighbouring surfaces, by the introduction of small pieces of ice or of iced water into the vagina, or by means of dossils of linen, immersed in water acidulated with vinegar or reduced in its temperature by an admixture with common salt. The effect of applying cold to the genitals and the parts immediately contiguous, can be equally effectually attained by causing the hand and arm to be immersed in cold water or vinegar and water of the same temperature. This latter mode, however, of applying cold, may not, in all cases, be recommended in preference to the common modes; inasmuch as there are patients, and hired attendants, who would not attach equal value to it. Cold air should be admitted, with proper precautions, into the patient's



chamber. Opiates may be administered to restrain irritation; which, by the removal of that symptom, may be expected occasionally to have the effect, indirectly, of restraining the hæmorrhage. If opium, however, is known to operate as an anti-cholagogue, which it does in certain cases, small doses of hyoscyamus should be substituted in its stead.

After all, if the abortion proves tedious, and a considerable quantity of blood is lost, whether by a few profuse, or by many-times-repeated smaller hæmorrhages, something more decisive must be adopted than any of the measures just enumerated, viz. a measure which shall have for its objects the induction of expellent action of the uterus and the speedy dislodgement of the ovum. The author has known numerous examples of very profuse hæmorrhages taking place during comparatively early periods of pregnancy, before the institution of the process of expulsion. Should such hæmorrhages be so frequently repeated as to produce much weakness or distressing nervous symptoms, or threaten to lay the foundation of permanent loss of health, it would at once become our indispensable duty to discharge the liquor amnii by stiletting the ovum. The liquor amnii may be discharged comparatively easily, either by perforating the membranes with a stilette, or with a long male catheter considerably un-curved, and with some perseverance introduced into the cervix uteri, so as to reach the membranes, and eventually conducted into the interior of the body of the womb. The discharge of the waters will have the effect of inducing expellent action of the uterus in the course of a few hours, or at most in a day or two. But even this measure may not be always necessary; inasmuch as the proper use of the plug may frequently suffice to excite the womb to expellent contraction, should that object be deemed advisable. For the attainment of the special purpose now contemplated, a plug of sufficient bulk must be made use of to charge pretty completely the whole of the hollow of the vagina, so as to irritate the parietes of its body and fundus into powerful contraction, by its strong pressure against the orifice of the womb. Of the use and mode of introducing the plug to arrest uterine hæmorrhage, the author will have an opportunity of speaking more at length hereafter.

When abortion takes place at early periods of gestation, it frequently happens that the foetal part of the ovum is expelled, while the placental portion and its appended membranes are

retained. This is the more unfortunate, inasmuch as art has little in its power to effect for the relief of such cases. The portions of the ovum so retained are, however, in most cases, ultimately expelled, either at once and in one mass, or afterwards in successive and smaller pieces, until the whole shall have been discharged. If, however, retained by strong adhesions, the remains of the ovum might be found occupying the mouth of the uterus, and presenting, like a polypus, some weeks afterwards, and like a polypus causing much irritation towards the orifice and flooring of the vagina, accompanied in some cases by profuse discharges of blood. These indolent bodies should be removed, if possible, without being broken or ruptured; and it is often practicable to effect their detachment completely so as not to leave a single fragment behind; a result, when attained, which generally gives great satisfaction to the patient and her friends. The author recollects a case of abortion of which the foetal part of the ovum was expelled at about the tenth week of gestation. The remainder was permanently retained; without, however, producing any future detriment to the patient. It must on the other hand, be admitted that, putrid and putrifying portions of retained placenta have often been productive of very serious consequences; such as abominably foetid discharges from the vagina, great hæmorrhages, feverish affections accompanied by a small sharp pulse, profuse perspirations especially at night, much prostration of strength, tenderness and intumescence of the abdomen, entire loss of appetite with corresponding derangement of the chylopoietic and gastric functions, and, finally, by the most alarming nervous and hysterical symptoms. To anticipate, and as much as possible to mitigate these serious inconveniences, the author places much reliance on the practice of frequently injecting warm water into the body of the uterus, for the purpose of removing all the putrid matter that could be forcibly washed out by such means, and of diluting, and of therefore rendering comparatively harmless, whatever sordes might not be completely detached and removed by such injections. Each application of the fluid should occupy at least an hour or two, and the water should be as hot as could be well borne. See some excellent cases in illustration of this practice in the old *Journal de Médecine de Paris*, vol. xii. p. 459, by M. Touzain.

OF PREMATURE LABOURS COMPLICATED WITH HÆMORRHAGE.—  
Labours occurring prematurely, during any of the three last

months of gestation, are technically called **PREMATURE LABOURS**; and, if accompanied by hæmorrhagic discharges, are attended with more or less danger both to the mother and child. It is obvious from the advanced period of gestation at which these hæmorrhages are supposed to occur, that on an average they must be attended by more abundant losses of blood than such as occur at earlier periods of pregnancy, by reason of the greater development in the latter months of the vascular tissues both of the uterus and the placenta.

As this subject is fraught with the deepest interest, and as it is of the last importance that it should be distinctly understood in all its branches, the author thinks that its distribution into distinct sections, with a view to the separate consideration of each, might be attended with much practical advantage; inasmuch as it would be a means of ensuring the reader's better comprehension of the entire subject. In the year 1776, the late Dr. Rigby, of Norwich, supplied ample materials for a new classification of hæmorrhages, in an Essay which he published the same year "On the Uterine Hæmorrhage which precedes the delivery of the Full-grown Fœtus." In point of date, Dr. Rigby was doubtless anticipated in the publication of some of the most important facts, which he propounded in his essay, and on which he founded his great distinction of hæmorrhages into **ACCIDENTAL** and **UNAVOIDABLE**; although from the date of many of his cases there can be no doubt that Dr. Rigby was equally entitled to the merit of novelty with his French rival the celebrated Levret.

Dr. Rigby distributed all uterine hæmorrhages of the latter months of gestation under two principal heads, which he accordingly denominated accidental and unavoidable hæmorrhages; considering the latter class as the effect of detachment of a part or whole of the placenta from the neighbourhood of the orifice of the uterus, to which he supposed it had been previously attached; and the former as the results of detachments of the whole or part of that mass from the fundus or body, to which he presumed under those circumstances it had been previously attached, but subsequently separated, in consequence of diverse occasional causes, such as any kind of violence, whether physical or mental, which might suffice to detach it from the surface of the uterus. The author begs to adopt Dr. Rigby's classification.



We propose to treat first of the variety of hæmorrhage, called by Dr. Rigby UNAVOIDABLE. It is well known that a period in the gestation must arrive when the orifice of the womb must become developed, and this happens in all cases at the full period of gestation, and must take place before the ovum can at all engage in the parturient passage. But we have had occasion to state, in a former part of the present work, that a great change takes place in the form of the NECK of the uterus, during the three latter months of gestation; and that then the cervix, by reason of its gradual development, is insensibly expanded, and therefore in effect added to the general cavity of the body of that organ, so as to have totally obliterated the narrow passage through its neck which is characteristic of its condition during the earlier months.

The development of the cervix uteri here referred to, being a natural condition of the womb during the latter months of gestation, it is obvious that the placenta, if it should happen to be attached to those parts, must suffer rupture, a result which must inevitably expose the subject of such a gestation to sudden and profuse hæmorrhage. This variety of hæmorrhage, therefore, has with great propriety been denominated unavoidable, since from the rupture and separation of the placental tissue from its surface of implantation just described, IT COULD NOT HAVE BEEN PREVENTED. The rupture of a part of the placenta, as we have now supposed, being inevitable, the consequent hæmorrhage must be considered also as necessarily unavoidable. But such detachments may sometimes be limited to very small portions of the placental tissue. In those cases we might expect that the hæmorrhage should be only moderate in its quantity. But the same necessities of such unfortunate gestations continuing to operate, successive detachments may be expected to take place of additional portions of the placenta, so that a recurrence of the hæmorrhages may be expected from time to time to take place in similar or in larger quantities, until at length the life of the patient shall be brought into imminent danger.

Before this pathology was discovered and embodied into a practical doctrine, nearly all the subjects of such pregnancies perished by profuse hæmorrhages which occurred in the latter months. Mauriceau very pathetically laments the premature death of a favourite sister, who died the victim of a hæmorrhage of this kind; although

it opened not his eyes to a glimpse of a correct understanding of its cause; which, if he had been aware of, must have protected the practitioner who had attended on the case from the unfair reflections with which he denounced his practice.

OF THE PROPER TREATMENT OF UNAVOIDABLE HÆMORRHAGE OCCURRING IN THE LATTER MONTHS OF GESTATION. When the true cause of this form of hæmorrhage was ascertained by Messrs. Rigby and Levret, the same practice naturally suggested itself to the minds of both, viz. the expediency of effecting the delivery as soon as the operation necessary for its accomplishment could be safely performed.

Dr. Rigby, in the first edition of his work on uterine hæmorrhage, founded upon the distinction of its causes, proposed a most important difference in the treatment of the two forms of floodings which that distinction recognised. In the case of unavoidable hæmorrhage, he at once insisted upon the practice of putting an end to the gestation by the induction of premature labour. This he proposed to do by introducing his hand, of course in many cases more or less forcibly, into the uterus, and bringing down the feet; concluding upon an inevitable return of the hæmorrhage, if ever he found the placenta presenting at the orifice of the uterus, if this practice was not adopted. As far as the author has been able to comprehend it, the doctrine of Dr. Rigby maintained that this treatment was to be adopted too unconditionally, and without sufficient attention to the precautions necessary to be observed with respect to the state of the orifice of the uterus. He never once notices the fact that the cervix and orifice of the uterus might be found impracticably rigid, EVEN FOR DAYS, subsequently to losses of fatal quantities of blood. For whilst admitting the fact of the uterus remaining undilated in the midst of profuse hæmorrhage, and the woman "might be dying from great loss of blood," he proceeds rather to assume the dilatableness under such circumstances of the os uteri by the introduction of the hand, than to suggest any means for the induction of spontaneous development, or to recommend the use of any efficient power for suspending and arresting the hæmorrhage, until the action of expulsion might be instituted. In short, he appears to lay no adequate stress on the danger of introducing the hand in the absence of a parturient condition of the womb. It is a fact, however, which the reader may fully depend upon, that if the parturient principle is wanting,

immediate artificial delivery may often prove a most perilous procedure. The reader will find a case in illustration in the 4to edition of this work.

But suppose the hæmorrhage should return, either once or repeatedly, the orifice of the uterus continuing in a rigid state, so as to involve the patient's life in great jeopardy; what other measure is there that can be proposed, by which her life might be placed in a state of security? The treatment in such a case, which the author for many years has recommended and practised with great advantage, is that which was long ago suggested to the profession by M. Puzos under similar circumstances, viz. that of discharging the liquor amnii by rupturing the membranes. It is a fact that the artificial discharge of the liquor amnii may, in a certain proportion of cases, be relied upon as a means of SUSPENDING profuse uterine hæmorrhages; and it will hereafter be made to appear, that the discharge of the liquor amnii thus promoted may be depended upon as A MEANS CALCULATED TO INDUCE THE ACTION OF PARTURITION. When that action is instituted, we generally find it accompanied, or at least very speedily succeeded, by a state of comparative relaxation of the orifice of the womb, such as might admit of the introduction of the hand without exposing the tissues to injurious contusion.

But let us next suppose the liquor amnii to be discharged in the manner here described, and the hæmorrhage nevertheless to continue, without any sensible reduction of its amount, the patient in the meantime gradually losing strength, and the pulse getting quick and feeble, and yet the *os uteri* STILL TO RETAIN OBSTINATELY ITS RIGIDITY; and here we are not supposing a case which experience does not fully warrant. Is there anything within the reach of art which might prove competent to rescue the subject of such formidable complications from her imminently impending fate? There surely must be; and it will be found to consist in adequately plugging the parturient passage.

The circumstances of the case, as we now suppose it reduced to, are, that the patient has already suffered the loss of a great quantity of blood from the uterus; that the liquor amnii has been artificially discharged; but that the orifice of the uterus remains still in a state of obstinate rigidity. The chief inconvenience that could be expected to arise from the use of an efficient plug would be, that it might mask an internal hæmorrhage. But the orifice



of the uterus is by supposition yet in a state of rigidity, and the probable inference is, that the whole of its parietes may be in a similar condition, or at all events so far possessed of their natural tonicity as not to admit of unlimited development. If then we suppose the vagina to be properly plugged, there will be left but little room for the reception of blood into the body of the uterus.

The author, however, has reason to suspect that the principle on which the use of the plug is founded is but little understood in this country. In his consultation practice he has frequently met with examples of plugging which could have had but very little effect, even in diminishing the quantity of the discharge which was being sustained, and which could have contributed much less towards completely subduing it. The latter object, however, he has the pleasure to state, is CERTAINLY ATTAINABLE. But it is too frequently the practice to adopt the routine expedient of thrusting a few dossils of linen into the vagina, just as many as might suffice to dilate the lower part of the passage, and to make ampler room for the escape of the current of blood from the uterus. The word plug, which is generally made use of to designate the kind of stopper, or mechanical obstructor which we are speaking of, is in itself a very proper term. It means something that is competent to shut up the passage from the womb, as effectually as a cork might be made to plug up the neck of a bottle. But if this plug be too small to meet its proper intention and to answer its purpose as a PLUG in the sense here supposed, it can no more be expected to have the effect of arresting a discharge from the uterus, or even of greatly diminishing it, than the cork proper for an eight-ounce phial put into the neck of a quart-bottle could prevent the escape of the contents of a vessel of the latter dimensions. Accordingly, the plug to be used for the purpose now under consideration must be sufficiently ample, not only to charge the vagina pretty completely in its ordinary state of capacity, but so effectually to occupy the space within it as to leave no room for the escape of even the smallest stream of blood from the uterus; this in fact will amount to a charge that shall be competent to distend it to the utmost limit of its capacity for development; or which, in other words, shall have the effect of filling up more or less perfectly and impactedly the whole cavity of the pelvis. The reader will at once perceive

that the idea of a complete mechanical security of this kind is not to be attained by merely introducing a few loose shreds of old linen into the lower part of the vagina, which constitutes too much the routine practice in such cases.

If the material used for this purpose, whether it shall consist of pledgets of old linen, or of quantities of sponge, be divided into sufficiently small pieces, the process of plugging in the manner here recommended may be effected without much difficulty. Of these materials, however, the sponge deserves the preference, as it may be passed up into the vagina so as to form a sufficiently solid body, with much more facility to the practitioner, and with less pain to the patient, than old linen of ever so soft a texture. The sponge has the advantage of being easily introduceable without being charged with anything oily or greasy, which it is obvious would have the effect of increasing the foetor incident to the discharges from the uterus under such circumstances.

When the plug shall have been passed up according to the directions now given, some provision must be adopted to prevent its premature escape; and to prevent the patient or her attendants from ignorantly and vexatiously removing it, as a means of relief from the pain which it must be expected to produce. This object is to be accomplished by the use of a strong figure-of-eight bandage, passed across the hypogastrium, and doubled round the hips and thighs, so as to apply strongly to the os externum, with or without the aid of an additional compress affixed especially to that part. The patient under this treatment is apt to consider herself rather harshly used, however gently the duty may be performed. It must be acknowledged that the wearing of such a plug, if we may use the expression, must be attended with considerable inconvenience; which, indeed, may be said to amount in some cases to much actual suffering. It should, however, be presumed that its duration cannot be of long continuance, and that the object to be attained by it must more than outweigh all the uncomfortableness and pain which it might occasion.

This tampon is not here recommended, as it has been by Leroux, as being a mere plug to rescue the patient from profuse uterine hæmorrhage; but also as a powerful means of exciting the uterus to contraction by its mechanical irritation of the vagina and os uteri. It is specially adapted for cases of tedious abortion, complicated with debilitating and frequently-repeated hæmorrhages; and for the cases

now under consideration, viz., those of profuse hæmorrhages occurring during the latter months, in the absence of uterine action, AND IN STATES OF THE ORIFICE AND CERVIX OF THE WOMB NOT ADMITTING OF AN ADEQUATELY early introduction of the hand for the purpose of turning.

It is well known that no foreign power has the effect of promoting the dilation of the uterus so effectually, and yet so kindly and safely, as the action of parturition. The plug is here therefore recommended as an auxiliary means of inducing that action, and as one admitting of being most conveniently superadded to the measure already premised of discharging the liquor amnii. Both measures having a direct tendency to moderate, and, for a time, almost absolutely to arrest alarming hæmorrhage.

But it may be objected to the use of the tampon used as here recommended, that the mechanical effect more immediately intended to be produced by it must obviously be accompanied by another result of a directly opposite tendency; viz., that of becoming itself an obstacle to the descent of the head into the pelvis, and even possibly after the parturient action of the uterus shall have been long established. This objection is altogether founded upon an insufficient understanding of the twofold intention of the plug, as now proposed; viz. that of suspending the hæmorrhage until the uterus shall have been excited into parturient action; and that of promoting a sufficient dilation of its orifice to admit of the introduction of the hand for the purpose of turning. When these objects shall have been attained, of which the practitioner must be able to judge from the general character and regularly-measured consecution of the pains, the plug should of course be withdrawn. Should it require to remain many hours in the vagina, the practitioner will have from time to time to direct his attention to the state of the bladder, and, if necessary, to make use of the catheter.

Should the uterus remain inactive for any considerable time, subsequently to the adoption of the two great measures now detailed, it might become necessary to withdraw the plug first used, on account of its liability to become offensive, and to introduce another as a substitute for it: and this may be done repeatedly for days until the required effect should be produced. The author, however, does not recollect a single example of a combined procedure of this kind being made use of, which had not the effect of exciting the uterus to parturient action within



twelve hours after the introduction of the plug. But the plug must remain in the vagina, not only during the whole time the uterus might continue to be inactive, but likewise for a time which might be deemed sufficient to give adequate effect to the action of labour as a means of producing development of the neck and orifice of the womb. In cases of profuse hæmorrhage occurring at any period short of the completion of the sixth month of gestation, there are no other means on which we can safely rely for the preservation of the patient's life than one or both of the important expedients now detailed to the reader.

The orifice of the uterus having at length been ascertained to be sufficiently dilated and relaxed, the hand is to be passed into the vagina, and afterwards with as little loss of time as possible into the uterus itself. But upon reaching the orifice of the womb, it will, of course, have to encounter the placenta or some portion of it partially detached; the remainder, however, still adhering to some part of the parietes. If occupying one side of the cervix exclusively, the hand might encounter only a thin expansion of membrane on the other side; and there no doubt, and not where the placenta might be found still adherent, it would be proper to effect its gradual and eventually its entire introduction into the uterine cavity.

But in cases where the placenta has been found to stretch across the whole of the cervix, and adhering as might be supposed almost equally to the whole of its circumference, it has been made a disputed question whether the hand should be passed at once and unceremoniously THROUGH ITS CENTRE, or insinuated carefully on one side, where an existing detachment might be found to have already made some way for it, and where the intercepting portion might be felt to be thinnest and almost approaching to the slenderness of membrane. If it were an object to inflict an additional injury on the placental structure, and so to complete the destruction of the foetal part of the ovum, the practitioner would of course pass his hand through the thickest of the obstructing mass, and run all risks of separating what might still remain adherent by its surface of implantation, to the orifice or neck of the womb. But if he considered that the child in utero might still be living, but living on an already reduced allowance, he would cautiously feel, for something like a right road, where he very probably, and the author speaks from much experience, might be able to effect the

introduction of his hand without further disturbing the connexion yet subsisting between the mother and child, and certainly without incurring any additional difficulty to himself. If the placenta be found to have been exclusively attached to one side of the cervix, it would be the practitioner's duty still more obviously to pass up his hand on the other, and even to select that hand which he might find best adapted for performing the duty.

The principal facts proper to be attended to in the treatment of the variety of flooding now under consideration may be briefly recapitulated as follows :—

1. If the hæmorrhage presents itself after the completion of the sixth month of gestation, before which period it is considered impracticable to turn, the first duty of the practitioner should be to ascertain whether the placenta was actually presenting at the orifice of the uterus or not. This point can only be determined by examination per vaginam. But in order that the actual state of things may be fully discovered and established, the examination in question must be such as to enable the practitioner to ascertain BEYOND A DOUBT the character, whatever it may be, of the presenting part of the ovum. The less experienced reader should be here informed that it would not be enough not to be able to find the placenta stretching bodily across the cervix uteri, but that it might be required to recognise the presence there of even a small fragment of placental tissue, either prolapsing in the form of a slender shreddy caruncle from the os uteri, or even yet adhering to the cervix within reach of the examining finger. To ensure a perfect accuracy and sufficiency of examination for this purpose, it will be necessary, in a small proportion of cases, to introduce the finger into the cervix uteri to some distance, so that by scooping its farthest limits, it might report the actual condition of the uterine surfaces immediately above.

2. On finding the orifice of the uterus insufficiently dilated, and likewise in a very rigid state, although the patient might be known to have sustained a profuse discharge of blood, the next indispensable duty of the practitioner is to discharge the liquor amnii, by piercing the membranes. This may be done either by a stilette, such as is represented in the Atlas, plate xxxv. fig. 2, or by a male catheter partially uncurved and of sufficient length to reach easily the orifice of the uterus. The author recommends the latter instrument in preference to the

other, in consequence of its being a tube of sufficient diameter to admit pretty speedily of the escape of the fluid to be discharged ; it being an object in cases of this description to effect the induction of labour AS SPEEDILY as possible.

3. Our next object should be to secure the patient against the continuance or recurrence of the hæmorrhage, until the orifice of the uterus shall have acquired a sufficient amount of development and relaxation to admit of the introduction of the hand for the purpose of turning. This object is unquestionably to be attained by a proper employment of the plug.

4. When, by the actions of the patient, and especially by the periodical occurrence of the pains which the above measures will have induced, and as soon as the practitioner can positively conclude that the labour pains so induced shall have been adequately vigorous, and of sufficient duration to produce the effect sought ; it will be his next obvious duty to proceed to the delivery by bringing down the feet.

5. The last important duty will be to effect a safe and speedy removal of the placenta, which happily, under the circumstances now presumed, will seldom be attended with any great difficulty. The treatment to be adopted after the removal of the placenta, will be submitted to the reader's consideration more properly hereafter.

OF ACCIDENTAL HÆMORRHAGE OCCURRING IN THE LATTER MONTHS OF GESTATION.—In the treatment of this form of hæmorrhage we presume upon the absence of the placenta from the orifice of the uterus or its immediate neighbourhood ; although the reader will of course infer, from the fact of a hæmorrhage at an advanced period of gestation, that the placenta, wherever attached, must have become partially separated. If, however, we suppose it to have been attached, and even partially to remain attached to any largely-expanded portion of the uterus, such as to any part of its fundus or body ; such a case would admit of the inference that there might be nothing in the constitution of the pregnancy which must NECESSARILY AND UNAVOIDABLY expose the patient to a recurrence of the hæmorrhage ; although it must be confessed that there could be no positive security against a return of the discharge at any future stage of the pregnancy.

Under these circumstances Dr. Rigby has recommended the practice of almost total abstinence from manual interference, and



all but an absolute reliance on the sufficiency of nature to effect the delivery compatibly with the eventual well-doing of the patient. "That this attachment of the placenta to the os uteri," observes that estimable writer, "is much oftener a cause of floodings than authors and practitioners are aware of, I am from experience fully satisfied; and so far am I convinced of its frequent occurrence, that I am ready to believe THAT MOST, IF NOT ALL, of those cases which require turning the child, are produced by this unfortunate original situation of it; and moreover, when the placenta is not so situated, the events of the annexed cases authorise me to say, that if the patient be properly managed, nature will for the most part terminate the labour safely without any manual assistance of the surgeon."

The distinction between these two forms of hæmorrhage is to be ascertained positively by examination per vaginam alone; but that mode of discovering the fact is not always satisfactorily practicable at the commencement of a hæmorrhage from the uterus, whilst even at that early period it might often be very desirable to be able to form a probable prognosis. Accidental hæmorrhage, as the expression implies, is the result in the greater number of cases of some known accident, or occasional cause; such as any quick, sudden, or inconvenient movement of the body; any blow, violent pressure, or any other mechanical shock applied to any part of it from without; any inordinate excitement of the heart's action, occasioned by violent and long-continued corporeal exertions; or any undue motions and excited states of the stronger passions of the mind, which may be presumed to influence the circulation in the gravid uterus.

But cases of what Dr. Rigby has technically called accidental hæmorrhage have often occurred, although certainly not so frequently as some writers have pretended, independently of any of the causes above enumerated.

When a woman at an advanced period of her gestation becomes the subject of a profuse hæmorrhage in consequence of exposure to the influence of any of the above causes, we should be justified, at least in the first instance, in taking for granted, that it would prove a case of accidental hæmorrhage, and that the placenta would eventually be found to have been attached to the fundus or body of the uterus. Unavoidable hæmorrhages occur most frequently in the latter part of the eighth and during the

whole of the ninth month of gestation, and hence floodings at other periods of pregnancy might, perhaps, with more than equal probability, be imputed to other causes, than to the detachment of the placenta from an inferior portion of the uterus; whilst however floodings during any period of gestation included within the three latter months, might in fact be the result of detachment of the placenta from the neck or orifice of the womb.

Again, the losses of blood consequent upon the application of violent causes are ordinarily very profuse at the onset, and often cease or become suspended soon after; whereas the unavoidable form of hæmorrhage continues for a length of time, or even increases progressively in its quantity, until the power of the circulation shall have been greatly subdued.

But the circumstance which of all others most advantageously distinguishes accidental hæmorrhage from the other form of flooding, is the absence of positive certainty of its recurrence. Hæmorrhages of trifling amount may take place from superior portions of the uterus, as an effect of the application of comparatively trifling causes, and of causes which might not again chance ever to be repeated, and of which the damage, in respect to structure or otherwise, might possibly be easily repaired. Hence it might be reasonably expected that a large proportion of cases of this class of hæmorrhages might admit of a favourable prognosis, at least in respect to the security of the more important life of the mother; and hence no doubt one reason why, after hæmorrhages of this kind, a large proportion of the patients never experience a repetition of them.

Finally, accidental hæmorrhages, it may be safely asserted, are on an average less dangerous and less frequently fatal, than those distinguished by Dr. Rigby by the epithet unavoidable.

But to proceed to the consideration of the treatment of accidental hæmorrhage: It has been already stated, that this form of flooding may occur at any period of gestation; and this fact is obvious from the circumstance that the placenta, although attached to a superior portion of the uterus, might at any time become detached by force or violence, or become separated in consequence of an insecure original connexion by reason of a diseased state of the part. It is a matter of experience that accidental detachments are often of very limited extent, and that the hæmorrhages thence arising are on that account but of trifling importance. We may therefore safely concur with the

opinion of Dr. Rigby, that a very large majority of cases of accidental hæmorrhage, may very safely be entrusted to the efforts of nature to expel the contents of the uterus.

If, however, it could be rationally presumed, that the placenta in any case had sustained an extensive detachment, the author considers that the only safe practice, with a view to the preservation of the more important life of the mother, would be to deliver by art as soon as a good opportunity could be made available for the accomplishment of that duty. But how are we to arrive at a probably correct knowledge of the fact that an extensive portion of the placenta such as we now suppose has become separated, so as to authorize and to require our interposition in the manner suggested? Something like a principle should be found for our decision in cases of so much alarming importance.

The author has for many years been influenced in his choice of practice under these circumstances by the consideration of the amount and effects of the FIRST HÆMORRHAGE upon the constitution. When the discharge has been rapid and sudden, as well as profuse, in the first instance, he has concluded that it must have had an extensive separation of the uterus from the placenta for its source. It is obvious that the same extent of unprotected uterine surface might furnish a source, at any future period of the pregnancy, of a hæmorrhage at least of equal magnitude, which the patient might not survive. This fact then furnishes a principle, which perhaps in most cases should be allowed to direct our practice. The same surface continuing to be exposed, it should be a matter of anxious inquiry, how far it were probable that a patient already enfeebled by a first flooding might be able to bear with impunity and certainly survive a hæmorrhage of the same amount again. If it should be his conclusion, that another profuse discharge might prove fatal, or even highly dangerous to the life of the subject, the author considers that it would be his bounden duty to proceed without loss of time to rescue her life from so much danger.

The time, however, when he should proceed to effect the delivery by art should be made a point of most deliberate consideration. The orifice of the uterus might be found in a state of extreme rigidity after the lapse of many hours, or even of days, subsequently to a profuse hæmorrhage. In that case it certainly might not be convenient, or even safe, at once and without preparation, to attempt artificial delivery. Under the circum-



stances here supposed, namely, those of a woman having sustained a profuse hæmorrhage and such as might have been deemed imminently dangerous, and the orifice of the uterus still continuing rigidly closed, the author maintains that the patient should not be left exposed to a repetition of such a flooding, and that it would be the practitioner's duty without delay to rupture the membranes, with a view to the gradual induction of the action of labour.

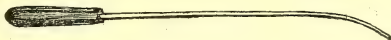
Experience has very sufficiently established the fact, that puncturing the membranes is calculated rather to suppress hæmorrhage, than to lay the foundation of a return of it; whilst we have already seen that puncturing the membranes rarely fails in the course of a very short time to bring on pains, and to establish the action of parturition. But the action of labour speedily induces a state of relaxation and development of the orifice of the uterus, which may generally be expected to make it both practicable and safe to effect the delivery by art. When a patient shall have already sustained so profuse a hæmorrhage as to have overwhelmed her constitutional powers, and placed her in a state of so much prostration as may give little or no promise of recovery, all nearly that the practitioner should offer to do in the way of assistance, at least in the first instance, would be to rupture the membranes with a view to an early discharge of the liquor amnii.

Although in such a case the orifice of the uterus might be in some degree dilated, or easily dilatable, it would be better in the absence of hæmorrhage to delay for some hours the operation of artificial delivery, and employ the time in endeavouring, by every effort in our power, by the administration of both medicines and nutriment, to sustain, and if possible in some degree to recruit, the patient's enfeebled powers. This rule of practice, however, can only be supposed to apply to a case in which the hæmorrhage shall have perfectly ceased; and a return of the flooding should be considered as an indication for proceeding without further loss of time to effect the delivery, by passing up the hand into the uterus, and bringing down the feet.

In states of extreme prostration, consequent on profuse losses of blood, it has been recommended by many writers to exhibit what they have called stimulants, usually meaning wine and spirits. The author considers this as very questionable practice,

excepting in very rare cases, and then in the smallest quantities. He believes, on the other hand, that draughts of cold water are the best cordials that can generally be safely exhibited in cases of flooding; inasmuch as they are better calculated than any other, both to promote uterine contraction, and to ensure a speedy recovery from a fainting state.

Perhaps the first thing that we should think of, after a woman shall have sustained a profuse discharge of blood under the circumstances we are now speaking of, should be to apply a large and firm compress to the abdomen; which should be bound over the anterior parietes of the uterus, moderately tightly, by a broad bandage, coiled repeatedly round the waist of the subject. The objects of this compress and bandage are obviously to give support to the abdominal parietes, to prevent any further diminution of the tonicity of the uterine fibres, and to cause the child and placenta to be applied so firmly to the interior parietes of the womb, that they might be made to operate as a compress to the bleeding surfaces of that organ. Our next measure, if not adopted in the first instance, should be to rupture the membranes. In the presence of a tense state of the ovum, rupture may frequently be effected by a strong pressure of the finger against the presenting part; but if the membranes are felt to be in a relaxed state, or the orifice of the uterus not to be sufficiently developed to admit of the introduction of the finger, a puncture is to be made by means of a more suitable instrument, such as a long probe, a stilet, of which a representation is given in plate xxxv. fig. 2, of the Atlas, and in the accompanying wood-cut, a stocking-needle, or even by a skewer or any other bluntly-pointed instrument that might be found on the premises.



After the operation of puncture shall have been performed, it should be ascertained whether or not the abdominal compress might not admit of being made tighter than on its first application. When the membranes are to be ruptured for the purpose of inducing the action of labour, the operation should be performed so as to secure the discharge of a considerable quantity of the liquor amnii, without loss time. For this purpose the author has often availed himself of the use of a male catheter,

much less curved, however, than when required to be used for the male subject.

During this part of our discussion, it should not be forgotten that the most practical point relatively to the use of the puncture in uterine hæmorrhages of the form now under discussion, is the selection of the proper time as well as of proper cases for its employment. In early gestation, it can never be useful as a measure of relief for a FIRST attack of hæmorrhage; since it cannot then be an object with the practitioner to induce labour prematurely. When, however, during the earlier months alarming hæmorrhages shall have occurred several times repeatedly, and after such hæmorrhages shall have importantly compromised the strength of the subject, the treatment by puncture of the ovum should be entertained as a point of most prudent and necessary deliberation. Even at more advanced periods of gestation, it does not very frequently happen that puncturing the membranes is found necessary, or could be admitted as a defensible measure of practice. It has been already more than once observed, that accidental hæmorrhage during the latter months may occur even repeatedly without seriously affecting the strength of the subject, and that the patient, in the greater number of cases, should be allowed to proceed to the completion of the full period of her gestation without interference. In all such cases, therefore, it would be obviously an unwarrantable practice to puncture the membranes, or to perform any other operation whatever which could have the effect prematurely of inducing the action of labour. It should not be forgotten that the induction of labour prematurely, and the quickening of the process of parturition, when too slow, are properly the indications to be kept in view in the treatment of our present class of hæmorrhages.

Subsequently to the discharge of a sufficient quantity of the liquor amnii, especially if hæmorrhage should be going on, and the orifice of the uterus be closed and rigid, the practitioner would have to deliberate on the question of having recourse to the plug, as was above recommended for the suppression of uterine hæmorrhage from placental presentation. The reader will of course observe, that the plug in the present case should be employed not as a compress to the bleeding surfaces, but as an instrument of irritation of the orifice of the womb, for the purpose of exciting indirectly the body and fundus of that organ to parturient action. For this reason the plug



should not be introduced with so much force as to occupy the cavity of the pelvis as impactedly as was formerly recommended for the relief of hæmorrhages from placental presentation: it should however be applied with sufficient firmness to answer its more immediate purpose of irritating the orifice of the uterus.

Among the other measures of treatment to be recommended for uterine hæmorrhage should be, to enjoin the observance of a state of perfect quiescence in a horizontal position, until the hæmorrhage shall have entirely ceased, and for many hours or days subsequently, or even for weeks or months, as the particular character of the case may especially indicate.

On the onset of a hæmorrhage, it frequently happens that the friends and family of the patient congregate numerously in her room, so as greatly to vitiate its atmosphere. This evil should be remedied.

Whatever might be required to be administered in the way of medicine or nutriment should be given cold, or at least coolish, or lukewarm. In the midst of profuse hæmorrhage, ices might often be strongly indicated; and any aqueous drinks which might be useful or called for, should also be exhibited quite cold. The author scarcely knows of a more ready remedy for uterine hæmorrhage, than half a pint, or even more, of cold water, taken at one draught. Care should indeed be taken that an exhausted subject should not be supplied with an excessive quantity of any cold fluid at a time, nor be too long exposed to the action of an intense cold in any form. Experience proves that the external application of cold produces its effect of arresting hæmorrhage by the suddenness of the shock which it occasions; and that if the object is not quickly attained, it is seldom secured by any prolongation of the means.

OF HÆMORRHAGES FROM RETENTION, PROTRACTED EXPULSION, AND DIFFICULTY OF REMOVAL OF THE PLACENTA FROM THE UTERINE CAVITY, SUBSEQUENTLY TO THE REMOVAL OF THE CHILD.

The hæmorrhage which precedes labours sometimes continues during the performance of that function, and even sometimes supervenes after the birth of the child shall have been completed. Such a hæmorrhage, it is obvious, must have either a partial or an entire separation of the placenta for its cause. The first object of the practitioner in that case should be, the abstraction of the whole of the after-birth without loss of time, with a view to place that organ in a state to become speedily contracted.

For this purpose there has been long established a rule of practice which must never be neglected. This rule prescribes the duty of forthwith introducing the hand into the uterus, and of removing the placenta by separation of one surface from the other WITHOUT VIOLENCE, but also without any unnecessary delay. This measure being effected, it seldom happens that the uterus does not almost immediately contract.

But without entering further upon this subject, it would appear proper to make a clear statement of the facts, as usually detailed in books, connected with what has been called retention of the placenta. We are happy to adopt on this subject the very satisfactory exposition offered by the late Dr. Denman, in his *Introduction to the Practice of Midwifery*. His doctrine supposes a retention of the placenta from three different causes, namely, from inaction of the uterus, from irregular action of that organ, and from morbid adhesion of the placental tissue to the uterine surface.

Inaction of the puerperal uterus seems in some cases to take place as it were capriciously from no evident cause. In other cases it would appear to be the effect of a state of exhaustion of the contractile power of the womb, from a tedious duration of the previous labour. In both cases, the retention of the placenta may be attended with no particular danger until it comes to be partially detached from the part to which it had been adherent during the pregnancy. As soon however as any part of it becomes separated, unless it afterwards almost instantaneously contracts, a flooding is the almost unavoidable consequence.

The second form of retention of the placenta may or may not be accompanied by a discharge of blood; inasmuch as the uterus, contracting irregularly, may or may not include within the contracting ring any portion of the placental tissue. If we suppose the whole of the placenta to be situated above the spasmodically-contracting ring of the uterus, the whole of it may remain attached to, and within what in that case has been called the superior chamber of, the uterus. But if the place of attachment of the placenta should be identified with the locality of the contracting ring in question, a powerful contraction of that part of the uterus will scarcely ever fail to be attended with a partial separation of the placenta, and of course to be followed by a discharge of blood. The third form of retention of the placenta, as has been stated, is that which arises from a morbid adhesion of the placental tissue to the uterine surface.

OF THE TREATMENT OF THE SEVERAL FORMS OF HÆMORRHAGE CONSEQUENT UPON RETENTION OF THE PLACENTA UNDER THE ABOVE CIRCUMSTANCES.—When the placenta is retained simply from inertia or inaction of the womb, and the practitioner can see no obvious cause for such an action, it is rarely productive of an alarming flooding. All that then would be necessary to do, would be to adopt the usual means calculated to excite uterine contraction. When no hæmorrhage presents itself, there can be no immediate demand for the adoption of any measures of an especially active character; and the reader may here be referred to the conclusion of the chapter devoted to the subject of natural labour, p. 638.

If, on the contrary, we suppose, after having waited for the expulsion of the placenta the usual length of time, a hæmorrhage suddenly to supervene, this complication would obviously form a more alarming case of retention of the placenta from inaction of the uterus. The cause of the alarm should be considered to be the hæmorrhage; and this is the point to which the instant and active attention of the practitioner should be directed. His first, and in many cases his only duty, would consist in introducing his hand into the uterus, and in forthwith separating and withdrawing the placenta. Under the circumstances of this case, we suppose, a state of comparative inaction of the uterus. The discharge being the effect principally of a partial separation of the placenta, the security sought for is to be obtained by its entire removal, and the subsequent speedy excitement of the uterus to contraction.

But let us next suppose the hæmorrhage to continue obstinately and unreduced after the removal of the placenta, by reason of the uterus remaining inactive and uncontracted: then it would no doubt be the most important object of the practitioner to stimulate the uterus to a state of active contraction, as speedily as possible and by the use of all the means best calculated to answer his purpose.

Among the measures upon which he should place his greatest reliance may be enumerated, pressure applied to the abdomen; the sudden abstraction of heat from different parts of the body by the application of cold media; mechanical and chemical irritation of the interior of the uterus; and the administration of cordials, acids, and tonic medicines by the mouth. The reader is already acquainted with the author's opinion of the



action of cold bodies as applied to different parts of the patient's person, and also as taken in the form of draughts of cold water into the stomach. There is however one other form of the application of cold which he has not yet adverted to; namely, that of cold water in ample quantities introduced into the rectum by injection. The immediate proximity of the rectum to the vascular tissues of the uterus would seem at once to suggest the transmission of the influence of a cold medium from one of these viscera to the other. It is difficult however to come to a correct conclusion in respect to the comparative value of cold thus applied; for admitting the efficiency of cold as exhibited by injection of cold water into the rectum, it is scarcely possible to assert the superiority of its action over an equally extensive application of it to the external surfaces of the body. The reason of this difficulty is obvious; namely, that wherever efficiently applied, the result is almost always a sudden and great diminution, and in the majority of cases an entire suppression, of the hæmorrhage.

Another great power calculated to subdue uterine hæmorrhage after the removal of the placenta, is, pressure firmly applied to the parietes of the uterus. This is especially valuable, by reason of its being immediately within the reach of the medical attendant, and most efficiently applicable to his object. On the onset of the hæmorrhage, therefore, when a strong contraction of the inactive uterus should be instantly promoted, a practitioner properly alive to the danger of the case applies his hand as it were by instinct to the body and fundus of the womb, for the purpose of exciting by pressure the required contraction of that organ. The hand must however be applied with great firmness, and continued in firm application for a considerable time. In the greater number of cases the uterus is felt to contract almost immediately under the pressure of the hand, and in a certain proportion of them the uterine parietes may afterwards be known to retain the hardness and resistance peculiar to the state of contraction. It is, however, to be regretted, that the contracted state in question once produced does not always continue to be permanent, but is often followed by a state of perfect relaxation of the entire organ; when it is known to furnish an opportunity for a renewal of the hæmorrhage. A knowledge of this fact, and it may be represented as one of frequent occurrence, furnishes a rule most imperatively to be

attended to, viz., that the practitioner should, if possible, persevere, in the use of the pressure here recommended, until the uterus shall become permanently contracted, or until he shall find himself, from personal fatigue or exhaustion, unable to prolong the effort. Under these most formidable circumstances, it may be of extreme importance that the medical attendant chiefly in charge of the patient, should have the assistance of an active brother practitioner, to whom the duty of keeping up the pressure now described might be transferred; inasmuch as the living hand, by reason of its competency to feel and report the effect of the pressure which it produces, is incomparably the best instrument that can be employed for the purpose described.

But profuse hæmorrhages may occur in the absence of all opportunity to obtain the assistance of a medical friend. In that case, what substitute can the practitioner, himself already exhausted, resort to for the production of the required pressure? The answer to this query must be, PRESSURE STILL, which, however, must be made by means of a suitable compress applied to the uterine region, and strongly bound to it by means of a broad belt or bandage coiled round the inferior part of the abdomen, across the umbilicus in front and immediately above the hips on either side. This belt should be made to invest the body of the subject as tightly as may be, and indeed with all the strength that the practitioner might be able to exert. The inconvenience incident to this mode of applying pressure, is that which results from the tendency of the bandage or belt in question to be thrown above the level of the umbilicus; whilst the greater part or the whole of the uterus might be situated inferiorly to that level. To remedy this inconvenience the author has often availed himself of the following expedient:—Let one end of another bandage be firmly secured to the principal belt already applied, at or in the immediate neighbourhood of the upper part of the sacrum; whence let it be carried between the nates and thighs towards the anterior surface of the body, where it should be equally securely fastened to the first bandage, at a point in a direct line above the pubis. The whole of this apparatus will obviously form a double T bandage, an anterior and a posterior one. Beneath the upper part of the perpendicular line of the anterior T, a firm padding should be imposed upon the uterine region, where the pressure should

especially be applied. Now if this double bandage, with its accompanying compress as now directed, be applied with adequate firmness, the practitioner might almost always calculate upon the speedy attainment of his object. If, however, upon examination, it should not appear that sufficient pressure could be ensured by the action simply of the bandages and compress as now proposed, it might no doubt be readily increased by thrusting between the perpendicular line of the anterior T and the integuments of the patient, immediately above the pubes, folded pieces of cloth, bundles of stockings rolled up as they are put in drawers when sent home from the wash, or any other packets of linen or cotton that can easily be made available for such a purpose.

The apparatus now described suggested to the author many years ago the idea of a uterine tourniquet. Its materials are so simple and common as to be easily obtained almost in every house. The bandages may be made either of belts of flannel, or of pieces of strong linen or calico; or these may be substituted by quarter breadths, or more or less of breakfast table-cloths, or of old sheeting, cut out suitably to the lengths required. The practitioner must not hesitate to use any of these latter articles on account of their value to a poor family, should nothing more convenient be produced; since their value cannot be put in competition with that of the life so imminently at stake. The reader will no doubt sufficiently comprehend the nature of the above piece of mechanism. Its objects are first, to produce pressure, as already stated, upon the hypogastric region, for the purpose of exciting the uterus there lodged to a state of firm contraction; and, secondly, in case of its failing to produce that effect, to cause the anterior walling of that organ to be strongly pressed against its opposite posterior surface, in order that its corresponding surfaces might thus be made compresses to each other; which, even in the absence of a disposition on the part of the uterus to contract, could scarcely fail to suppress the hæmorrhage.

If we suppose the several bandages described to be sufficiently tightly drawn, and the placenta to have been attached to any part of the body or fundus of the womb, it is obvious that the patient might thus be placed in a state of perfect security against any effusion of blood into the interior of the cavity of the uterus.



But, if we presume the placenta to have been attached to the neck and orifice of that organ, the abdominal compress now proposed would alone be no adequate security against a further discharge of blood, which therefore would still remain to be provided against. This object happily may also be easily effected in the following manner:—Let the perpendicular line of the T, in the anterior T bandage, be made to consist of two parallel bandages capable of being separated from each other at the outlet of the pelvis, sufficiently to leave an intermediate space through which pieces of sponge, or any other convenient substances of small size, might be readily conveyed into the vagina, so as completely to fill it, as already recommended on a former occasion. When the vaginal passage shall thus have been charged to actual impaction, a good thick compress should be applied to the external orifice, and there kept firmly pressed by the action of the anterior T bandage, which should be drawn with sufficient tightness to prevent, if possible, even an oozing of blood from the parts. A subject treated by means of a uterine tourniquet, such as we have now explained, might be said to be actually case-hardened against the possibility of further flooding, as long as the apparatus should be permitted to remain applied; and her only danger would be limited to the effect of the loss of blood which she might have already sustained. Persons not possessed of much mechanical contrivance, nor sufficiently practically adroit to effect the application of the bandage soon or firmly enough to ensure all the advantage which might be expected to result from it, might perhaps be disposed to complain of its clumsiness and unsuitableness for its purpose. The author has been chiefly induced to recommend it for its economy and accessibleness, and not by any means with the intention of superseding a better-contrived uterine tourniquet. The reader indeed will find represented in plate xlv. of the Atlas, the model of a regularly-constructed instrument of pressure already partially known to the profession under the designation of uterine tourniquet; and also, among the tabular descriptions of the plates, a sufficient account given of its mode of application.

OF THE RETENTION OF THE PLACENTA FROM SPASMODIC CONTRACTION OF THE UTERUS.—Of retention of the placenta from this cause, it may be useful to state that there are two varieties, of which one is unaccompanied with hæmorrhage, whilst the other is essentially a cause of profuse flooding. The former variety

requires little treatment, and may be entrusted in most cases, under proper vigilance, to the influence of time, and to that of a full dose of opium. Many cases are met with of retention of the placenta from this cause, which terminate very satisfactorily in two or three hours, by a spontaneous expulsion of it, independently of any interference whatever. During the lapse of such a period of time, the uterus, although it might not contract sufficiently at any one moment to expel the placenta, might be expected to be considerably diminished as to its capacity, by a scarcely-perceptible action of its parietes, the result of its tonicity, which might have the effect of placing it in a situation of adequate tendency to contract, to warrant the introduction of the hand, for the purpose of removing the after-birth. Perhaps firm pressure of the hand on the hypogastric region might then suffice to produce a more vigorous contraction of the womb, although at an earlier period it had failed to produce that effect. A precaution of great importance to be strictly observed in the management of a case of this kind would be, not to introduce the hand prematurely, nor at all events to separate the placental tissue from the uterus, until the practitioner should be quite confident that these measures would be immediately followed by a firm contraction of that organ. The author has often in cases of this description derived the best effects from a full dose of opium; that valuable medicine having as he verily believes the double power of subduing the violence of the spasmodic action, and at the same time of promoting what may be called the natural and organic contraction of the uterus. When the uterus shall have so far contracted as nearly everywhere to close upon its retained placental contents, the medical attendant might then effect its removal by the introduction of the hand.

Our second variety of retention of the placenta from spasmodic contraction of the uterus, is that form of it which is attended with hæmorrhage. In this case a portion of the placenta is presumed to be separated from the uterine surface, by the coincidence of its locality with the spasmodic ring, constituting what has been very frequently called the HOUR-GLASS CONTRACTION of the womb. The nature of this injury is such as to forbid the hope that the discharge could be expected to cease, without the removal of the placenta. That duty should indeed be performed without delay, since the uterus could not be

placed in a situation to become permanently and sufficiently contracted, to effect its total separation from the placental tissue; the partial detachment of it being the proximate cause of the hæmorrhage. The practitioner must not hesitate to perform this duty at once on his own responsibility; the nature of the case affording no time for consultation, nor of delay for any other purpose. The author has more than once known fatal events to supervene, from procrastination, under these formidable circumstances. The reader, on the other hand, should be apprised, and the author begs to state his own experience with great confidence on this point, that he can have no ground for hesitation as to the duty of instantly effecting the entire removal of the placenta whenever a profuse discharge of blood shall furnish him with the evidence of an already partial separation of it. This indeed is his first and paramount duty under such circumstances, and in comparison with all other measures, THE ONE THING NEEDFUL that he has to attend to. Should the discharge continue after the removal of the placenta, a case of very rare occurrence, it should be arrested by the application of cold, and by the use of the other means which have been already recommended.

**OF RETENTION OF THE PLACENTA FROM MORBID ADHESION OF ITS TISSUE TO THE INTERNAL SURFACE OF THE UTERUS.**—This case supposes the previous existence of structural disease, either of the placenta, or of the uterus, or of both. Indeed, one of these tissues can scarcely be the subject of disease without the other. The morbid result may, however, generally be presumed to commence in the uterus, in the form of an inflammatory affection of one of its parietes. That organ, when locally inflamed, becomes adherent, by the action of such inflammation, to the placental mass, by the intermediation of an extraordinary vascular tissue, which it is well known adhesive inflammation generates. The circumstance which principally deserves to be mentioned in this place is, that the vascular tissue thus produced is possessed of much greater tenacity than that of the ordinary vascular tissue, by which the placenta is connected to the uterus in its natural and healthy state. From the excessive tenacity of this connecting medium, the uterus is found incompetent, after the delivery of the child, to rid itself of the after-birth, which therefore becomes obstinately retained.

For the treatment of this form of retention of the placenta it



has been proposed to extract it, by a force sufficient, at all events, to effect its separation. By the adoption of this practice much mischief from excessive irritation, contusion, and even laceration of the uterine tissue, has been inflicted. It has been recommended by others to abandon such cases to the exclusive efforts of nature; and these have, in some instances, very satisfactorily responded to their wishes. But this treatment, in too many others, has terminated most unfortunately, by the fact of its having frequently laid the foundation of putrid peritoneal fevers, and of fatal hæmorrhages. The proper, and indeed the only safe practice to be adopted in such cases, is, to withdraw, by careful detachment, all of the placenta that is found not morbidly adherent to the uterine parietes, leaving the diseased remainder to such kindly offices of nature as she may exert for their expulsion. By the adoption of this prudent management, a very valuable proportion of cases have been known to terminate favourably, by a very slow and gradual process of decomposition of the morbid remnants of the placenta, and final escape of them from the uterine cavity. This result, however, has not always taken place, without much previous disturbance, both of the uterine and general systems; but it is sufficiently gratifying and encouraging to know, that the patient is likely ultimately to recover.

Before we conclude this chapter it will be reasonably expected that we should take notice of some other measures of treatment which have at different times been recommended by very respectable and experienced practitioners. By some, opiates have been very strongly recommended in large quantities; such as from drachms upwards to half ounces or more, with a view, speedily if not entirely and at once, to suppress profuse hæmorrhages. Associated, as severe uterine hæmorrhages often are, with much nervous restlessness and irritation, full doses of opium may, in such cases, be expected to have the effect of repressing, or at least of greatly moderating, such symptoms; and the author can safely say, that he has not unfrequently seen excellent effects produced by their exhibition. Under the circumstances adverted to, the practitioner may almost at any time exhibit a drachm of opium in consecutive doses with perfect impunity, provided the interval after each dose shall not be much shorter than a quarter of an hour; but in a few cases of extreme exhaustion, perhaps larger quantities than here prescribed might

be entrusted to the discretion of practitioners of extensive experience. Full doses of opium are usually inductive of nausea and vomiting, after the lapse of some hours subsequently to their exhibition. But those results are of trifling ultimate consequence, in comparison with the great advantages to be expected from the successful use of opium in repressing the extreme nervous irritation which its exhibition is eminently calculated to subdue.

We have already adverted slightly to the duty of observing perfect quiescence, in combination with the horizontal position of the body, during a profuse uterine hæmorrhage. The rest here recommended should be directed to be made absolute, or it may not suffice to ensure all the advantages for the attainment of which it is now urgently recommended. Mrs. B. was the subject of a very tedious labour, which was finally completed by means of the forceps. During the latter period of the struggle, the patient's pulse became so much enfeebled as to create considerable anxiety as to the ultimate event of the case. Immediately upon the delivery being effected in the manner already stated, a foetid coagulum, partially involving the umbilical cord and a great portion of the placenta in a putrid state, was expelled with considerable force from the vagina, and was forthwith followed by a prodigious stream of uncoagulated and apparently arterial blood from the uterus. The patient instantly collapsed into a state of the most dangerous syncope. As soon as she recovered well enough to swallow, small draughts of cold water were exhibited to her; cold was applied to different parts of the body externally; pressure was effectively made upon the abdomen by the late Dr. John Powell, who had been originally engaged to attend the patient during the confinement. The hæmorrhage nevertheless was not entirely subdued; and something more than an oozing of blood continued to trickle from the vagina for upwards of two hours. At length the poor lady became dreadfully exhausted, and ghastly; but the scene in the progress of the case presented something of variation, by the accession of a state of extreme restlessness and jactitation; and on a sudden, the patient expressed a wish to be moved into a new position, and upon non-compliance with it, threatened to accomplish it by her own efforts, even if she should die in the attempt. Her attendants considered themselves obliged to give her the required assistance, which was done in the most careful manner, to the almost entire exclusion of personal exertion on her own part.

She was gently moved and placed high upon her bed in a horizontal posture. This trifling movement left her in a state of such profound exhaustion, as to make it doubtful for some minutes whether she continued to breathe. Even when the hæmorrhage had totally ceased, and she had in a great measure rallied from the immediate effects of the flooding, her final recovery remained long doubtful. The case is here quoted to urge the importance of recommending absolute rest to persons similarly affected.

The author has little to say upon the different modes which have been made use of, to excite contraction of the uterus by irritating its internal surface.

A French writer strongly recommends the introduction of a large bullock's bladder into the uterus, which in the uterine cavity he directs to be blown into full distention, for the purpose of being made to act as a compress upon the bleeding surface of the uncontracted womb. The immediate object of this device must obviously tend to keep the uterus in a state of distention; whereas the true principle of the practice deemed in this country most rational and successful is, as soon as possible, to excite that organ into active contraction. The treatment proposed therefore would appear to be incorrect in principle, as well as little calculated to engage our confidence by any promise of great practical utility.

Another writer of the same nation recommends the introduction into the uterine cavity of a large lemon imperfectly quartered, by two sections made across it at right angles as far as, or a little beyond, its centre. He then directs it to be left in the cavity of the womb for the purpose of being strongly compressed and eventually expelled by the excited contraction of the uterine parietes. He adds that he had found this expedient well calculated to subdue puerperal floodings. To a certain extent this practice is liable to the same objection as that of the other French writer. Beyond this, the author cannot take upon himself to make any positive statement as to its merit, inasmuch as he has no practical experience of its application.

The principal chemical irritant usually employed for the subduction of uterine hæmorrhage after delivery, is an injection made with one part of vinegar and two of water conveyed into the uterus with a syringe; which, according to the testimony of some of the most respectable members of the profession in our



own country, must be possessed of considerable power to suppress floodings. Of this treatment, also, the author regrets that he cannot give his testimony very positively, either for or against it, having almost always preferred the practice by pressure, applied in the several modes already detailed.

Moreover, the author has seldom had recourse to the introduction of the hand for the purpose of exciting irritation. But in those cases where he has adopted that course, he has indeed sometimes succeeded; although at other times, and perhaps equally frequently, he has been greatly disappointed in the result.

There is one measure yet to be noticed, which of late years has been greatly lauded for its efficacy, not so much indeed as a means of arresting puerperal hæmorrhage as of restoring the balance of the circulation when extremely depressed by a flooding already sustained; and as being calculated eventually to promote the recovery of a patient, all but on the eve of expiring. The reader will easily recognise the practice alluded to, to be that of transfusion of blood, from a healthy subject, to the exsanguined victim of puerperal hæmorrhage.

This practice of transfusion, after a total neglect of it for upwards of a century and a half, was revived some twenty years ago by a talented physician of this metropolis. Since that time, many cases in the practice of that respectable individual, as well as several others in that of his friends and disciples, have been recorded, both of its apparently successful application, and also of its entire failure. Whether results have been sufficiently numerous to warrant a favourable opinion of the treatment by transfusion, which Dr. Blundell has certainly done much to recommend, it may not perhaps become the author to decide, inexperienced as he confesses himself to be in the practical detail of the subject. The ultimate conclusion in a point like this must essentially depend upon the accuracy of the experiments, by which the doctrine is sustained, as also on the honesty of the testimonies which appear in support of it. On these points he feels that he is not competent even to entertain an opinion. But there are some other circumstances which he may be permitted to notice, which appear to him to militate strongly against the probability of the treatment becoming permanently established.

He would observe, first, that the quantities of blood trans-

fused in the treatment of the cases in question, have been generally much too small to warrant the conclusions which have been drawn from them, as he thinks, with too much confidence. The average quantities stated in the published reports of the cases in question have seldom exceeded seven or eight ounces; and, as far as the author knows, the largest quantity has not quite equalled sixteen ounces. Now how can any cautious reasoner and experienced physician venture to predicate, either favourably or otherwise, of the results of cases made the subjects of experimental trials of this kind, amidst such nicely-balanced circumstances and such various grounds of hopes and fears? Might it not be supposed, without any great violation of probability, that an adult female PREVIOUSLY IN GOOD HEALTH, AND THEREFORE CONTAINING MANY QUARTS OF BLOOD IMMEDIATELY BEFORE THE TIME OF HER CONFINEMENT, might eventually recover from a state of great exhaustion from hæmorrhage, almost as certainly WITHOUT as with the paltry addition of six or eight ounces of foreign blood? It is attested by the evidence of daily occurring facts, that women sometimes recover from states of the most desperate exhaustion, and after their lives had been all but totally despaired of by persons of the most competent experience in such matters.

Again, experience appears to sanction the presumption that the capacity of the arterial system considered in connexion with its influence on the nervous and respiratory systems is much too limited, to make it probable that it should ever, by any variations or modifications of future trials, be brought to admit and to adopt for its own purposes, within the period of an hour or even of some short fractional portion of that time, sufficient quantities of foreign blood to ensure the recovery of one woman in a hundred, and so serve eventually to promote the establishment of the practice of transfusion.

Another reason why the author feels much less sanguine as to the eventual success of the practice by transfusion is, that after a trial of about fifteen years, or more, it has not yet become established. If its pretensions had not, in fact, already failed to come up to the expectations of its patrons and the hopes of the profession, he feels confident that it would have been established long ago. It cannot be said that it has wanted the advantage of being well introduced to public notice, nor that the first experiments by which that introduction was made were

not beautifully conceived, and as far as the author can judge, performed with the greatest adroitness and accuracy. But it is nevertheless a fact, that with all these advantages, the practice of transfusion is now less frequently had recourse to in the treatment of uterine hæmorrhage than it was ten years ago.

OF LABOURS COMPLICATED WITH RUPTURE OF THE UTERUS AND INJURIES OF OTHER TISSUES MORE IMMEDIATELY INTERESTED IN SEVERE AND ARTIFICIAL BIRTHS.—The rupture of the gravid uterus at an advanced, or at the full period of gestation, is to be ranked amongst the most dangerous and alarming casualties incident to the function of parturition. It may be occasioned by mechanical violence from without; by excessive action of the uterus itself in circumstances unfavourable to the safe completion of the labour; by its ordinary action too long continued or inordinately resisted; and by ill-directed movements of the practitioner in the performance of obstetric operations, whether by the hand or with obstetric instruments.

When the accident takes place from mechanical injury, it is called ACCIDENTAL RUPTURE; but when from irregular action of the uterus itself, it has received the designation of spontaneous rupture of the womb. The epithet spontaneous has been applied to many cases of laceration, when it has occurred during the presence of the practitioner's hand in the uterine cavity; which therefore might with more propriety have been called ACCIDENTAL, because really produced by mechanical violence. Rupture of the uterus, from violent action of the organ itself, may take place under two varieties of circumstances; namely, first, when the pelvis is of natural size, and the orifice of the womb undilated, and in a state of extreme rigidity, and therefore undilatable by any safe exertion of the natural powers; or it may happen from deformity of the pelvis, the membranes being ruptured, the pains at the same time violent, and the waters evacuated.

Laceration of the womb may take place in any direction. When the injury is inflicted by the practitioner's hand, the rupture is for the most part found after death occupying the fundus, or a superior part of the body of that organ. To this rule however there are some exceptions. When it takes place spontaneously in consequence of inordinate resistance, from want of sufficient capacity of the pelvis, it usually implicates the neck and shoulder of the uterus, which are known ordinarily to correspond with the localities of the promontory of the sacrum behind,



and of the linea ileo-pectinea laterally and anteriorly. These ruptures most frequently take place transversely, and very rarely in longitudinal directions.

Lacerations of the womb have usually made their way through the entire substance of its parietes ; although in some rare cases the loss of continuity has only implicated its peritoneal tunic. Of this form of the accident, independent of external injury, the author has known only two examples ; of which one occurred in the practice of Sir Charles Clarke, and is published in the first volume of the Transactions of the Medico-Chirurgical Society ; and the other within his own experience.

Of the latter case the following is a brief sketch. The subject of it was a poor woman, a patient of the Maternity Charity, who had waited upon a committee of gentlemen to make application for a contribution out of funds which they were appointed to distribute. But the pecuniary assistance sought, for reasons not necessary to state, was refused. This denial was instantly productive of a total change in her physical condition. From being able to have walked about half a mile to the place of meeting of the committee in question, she was suddenly bereft of all capacity for locomotion ; and was not able to return home without the assistance of several friends, nor with that assistance until after the lapse of some hours. In the course of the same afternoon, she was taken with labour-pains. The labour soon became complicated with a slight sanguineous discharge. About midnight, she was seized with successive faintings, which induced the midwife to send for the author's assistance. He found the wretched patient in a very alarming state, exhibiting an appearance of much distress and ghastliness, with short and difficult breathing, and the other characteristic symptoms incident to lacerations of the womb and its appendages. The uterus however was not totally incompetent for expellent efforts, and the head of the child was found being gradually propelled towards the outlet of the pelvis. A dead child was born at four o'clock in the morning, and the placenta was thrown off spontaneously, and shortly after withdrawn from the vagina by the gentlest traction. No hæmorrhage followed, nor was there sustained throughout the whole process of the labour the loss at most of twenty ounces of blood. The patient gradually sank after the labour was completed, and died in about three hours and a half subsequently. At an early hour on the following day the abdomen

was inspected. Some convolutions of the intestines were found floating in a great quantity of a dark, grumous, thickish fluid. On first view, it was considered probable that the uterus had sustained, as in ordinary cases of this nature, a laceration throughout its whole substance: but upon accurate examination of the actual injury, it was discovered that the source of the sanguineous discharge was a rupture of about two inches in length, together with several smaller fissures, of the peritoneal covering of the posterior walling of the uterus, of which the deepest scarcely entered the twelfth of an inch into the subjacent parenchyma. During the moment of the first shock, which appeared to decide the fate of this poor woman, she felt, as she expressed herself, "as if struck with instant death." Was the child in this case, which was known to be alive in the early part of the morning, thrown into convulsive action by the sudden moral shock which the mother sustained; and in consequence of the struggles of the fœtus so produced, could the fatal injury have arisen? That it might is not at all events an improbable supposition.

Again, the author has seen one example of rupture of the whole of the parenchyma of the uterus, without implicating its peritoneal covering. The injury in that case was inflicted by manual violence. Hæmorrhage supervened in about twenty minutes after the mischief was done, and the patient soon after died of flooding.

Lacerations of the uterus happen for the most part during labour, especially when they occur spontaneously, and at the full period of gestation; whereas ruptures produced by mechanical injury from external violence, may happen during any of the earlier, as well as of the latter months of pregnancy.

Rupture of the uterus is usually preceded by certain threatening symptoms. These symptoms too unequivocally in most cases point to the event which is to follow. Hence the duty of the practitioner to pay the utmost attention to all the circumstances which may be supposed to indicate more than ordinary difficulty in the performance of the function of parturition.

The circumstances known to precede the deplorable accident under consideration, and usually recognised as precursory and premonitory symptoms, may be briefly enumerated as follows:—  
1, An undilated orifice of the uterus after the escape of the waters. 2, A deformed pelvis. 3, Violent uterine contractions recurring every five minutes, and alternating with severe super-

added pains of a spasmodic character in the back and abdomen. 4, The child felt strongly marked through the parietes of the abdomen, and the uterus extremely tense during the pains, upon the hand being applied to the hypogastric region. 5, A state of extreme excitement of the heart and arteries, accompanied by inordinate irritation of the nervous system. 6, A febrile temperature of the body. 7, A sudden seizure usually of an inferior part of the abdomen by a pain of extraordinary intensity, different from and accessional to the parturient pains previously sustained. When the above symptoms, or the greater number of them, occur during the progress of a severe labour, a rupture of the uterus is constantly to be dreaded.

The symptoms indicative of the actual rupture cannot ordinarily be mistaken.

1, In general at the moment of the rupture, the patient feels the laceration, and sometimes exclaims that something has given way within her, and generally inquires of the attendants, if they had not overheard the noise which had accompanied the accident. 2, The bearing-down or parturient pains, from having been previously excessively violent, suddenly cease, never again to return. 3, Immediately after the accident, a small or at most a moderate quantity of blood is discharged from the vagina. To this rule, however, there are some exceptions, which, when they occur, are to be imputed to the pelvis being completely occupied by the head or other presenting part of the child. At nearly the same moment the presentation is found in many cases to have receded out of the cavity of the pelvis into that of the abdomen. To this rule also there are exceptions. The head or other presenting part being strongly impacted within the pelvic cavity, its retrocession becomes impossible. When the child recedes, if not completely enveloped in the membranes, it is forced, through the aperture furnished by the laceration, into the abdominal cavity. In many cases breathlessness and syncope speedily supervene; but in others the first shock sustained by the living powers would seem to be less alarming: soon after, however, the mortal injury is followed by its characteristic indications, a peculiar variety of difficult breathing, which might be called costal respiration; a rapid reduction of the temperature of the body, especially of the extremities; a sudden change of character of the pulse both as to strength and regularity; ghastliness of the countenance; a total collapse of the powers; and, finally,



delirium animi, the immediate forerunner and prototype of death.

The fatal event sometimes takes place in the course of ten minutes or a quarter-of-an-hour after the accident. More frequently the patient survives for six, eight, or twelve hours. But in the great majority of cases she dies within twenty-four hours after the receipt of the injury. The author has indeed known several instances of persons who had survived three, four, five, and six days. Steidele, as quoted by Dr. Burns, relates the case of a patient who lived till the twelfth day. One of Dr. Garthshore's patients lived till the twenty-sixth day after the accident.

There are recorded many histories of lacerations of the uterus, a small number, however, in proportion to all the cases reported, of which the subjects eventually recovered from the effects of such ruptures. There occurred in the author's practice, about fifteen years ago, a case of rupture of the uterus, which by extension became continuous with a laceration of an inferior portion of the bladder. The subject of it was a patient of the Maternity Charity, under the care of one of the midwives of that institution, when the accident happened. She eventually recovered, but not without the damage of a permanent incontinence of urine, in consequence of the injury sustained by the bladder. The occasional cause of the accident was the want of sufficient space at the superior aperture of the pelvis. A case also of recovery took place some years ago in the author's consultation-practice. The subject of it was a pauper in the parish workhouse of St. Clement Danes. The child, which had escaped into the abdominal cavity, was withdrawn through the natural passage by bringing down the feet. The head was opened and pretty completely emptied of its contents before any considerable traction was made use of to bring it into the pelvis. The patient sustained very alarming symptoms during the second and third weeks after her delivery; but she ultimately perfectly recovered. The case has already been reported in the Transactions of the Medical and Chirurgical Society by Mr. James Powell of Great Coram-street.

Notwithstanding that rupture of the uterus was very generally believed by the surgeons of this country to be essentially incurable, till the period of the case of Mrs. Manning of Clare Market, as reported by Dr. Douglas, in his very excellent essay

on this subject, there are now existing records of many unquestionable examples of recoveries ; the more learned reader, moreover, is aware that cases successfully treated were reported by German and other continental writers upwards of two centuries ago. See Douglas's *Observations on an extraordinary case of ruptured uterus*. 8vo. Johnson. London, 1785.

OF THE TREATMENT.—From the above brief historical sketch of uterine ruptures, the reader may easily comprehend the nature of the treatment now to be proposed. It is obviously distributable into the two principal indications of prophylactic and curative. Should the series of symptoms which the author has above enumerated as precursory and premonitory be opportunely recognised, the treatment by prevention would be obviously that to be adopted ; and their occurrence should indeed furnish a peremptory rule to young practitioners for treating all tempestuous labours by ample bleeding and the exhibition of opiates in the first instance. After the inordinate excitement of a labour of this description shall have been thus adequately subdued, the practitioner will have leisure to examine his case more accurately in all its bearings ; to ascertain the amount of whatever rigidity of the neck and orifice of the uterus may yet remain ; and also to investigate any UNUSUAL causes of resistance that may exist within any part of the parturient passage. He will have time to ascertain with sufficient accuracy the actual dimensions of the pelvis both at its brim and its outlet ; the precise degree of advancement of the child's head, or whatever other presentation it might happen to be, into the pelvic cavity ; and to consider upon the whole what ought to be done for the immediate relief, as well as for the eventually successful issue, of his case. He will of course have to deliberate, whether he should proceed to effect the delivery by art, or whether, after having subdued the violence of the labour, he might not safely entrust its yet dubious fate to the further cares of nature. If the latter, he will of course have to exercise great vigilance during the powerful struggles which the uterus might have still to exert for the safe propulsion and final expulsion of the foetus. If the former, he will have to determine on the best mode of effecting artificial delivery, which, however, it is not at present our immediate object to explain. As a rule applicable to all cases of delivery by art in states of extreme danger to the mother, it would be his duty always to consider her safe recovery as the preferable

object of attainment, whenever the preservation of both lives might appear impracticable.

OF THE TREATMENT SUBSEQUENTLY TO THE ACCIDENT.—In undertaking this part of his duty, the practitioner may well consider himself as about to advance on the services of a forlorn hope. Inasmuch however as the laceration of the womb is not an essentially mortal accident, such services must unfortunately be sometimes undertaken, and therefore ought to be judiciously executed. The practical question which would here first present itself for consideration would be, whether art should be employed to withdraw the child from the abdominal cavity, or wherever else it might be found ; or whether nature might be entrusted to make use of her best exertions to repair the damage sustained, and ultimately to rescue the patient from the imminent risks incident to her alarming situation. A lady, under the obstetric superintendence of a respectable female practitioner, became the subject of rupture of the uterus, during a temporary absence of her midwife. On her return, the latter found that the head of the child, which she had previously felt engaged to some depth within the brim of the pelvis, had retroceded beyond the reach of an ordinary examination *per vaginam*. In short, by an external examination, she ascertained that it had escaped into the abdominal cavity. The late Dr. John Sims was sent for without delay. That gentleman immediately confirmed the midwife's alarming suspicions ; but was greatly surprised to find, that the symptoms attendant on the accident were scarcely sufficiently deplorable and characteristic to make it quite certain that the rupture of the womb had been actually incurred. After deliberating for some time on the treatment which in such a delicate state of things he should adopt, Dr. Sims finally determined on doing nothing, until in the further progress of the case, some more decided indications should be furnished. The symptoms continued to be very mild for several subsequent weeks, when being privately engaged in a certain effort of nature, the patient was alarmed by the evacuation *per anum* of a putrid fleshy mass containing several phalanges of foetal digits, both of feet and hands, which were successively followed by other portions of the foetal skeleton, and eventually by all the constituent bones of the skeleton, with the exception of those of the head. The patient in the mean time continued to enjoy a tolerable state of a somewhat broken health. When so much of the child was thus



removed from the abdominal cavity, the unfortunate subject of the case was advised by an ignorant neighbour to take a ride over the roughest streets of the city in a hackney-coach, for the purpose of having herself well shaken, in order to ensure a similar evacuation of the yet remaining bones of the foetal head. This experiment was urged upon her by much assurance on the part of her friend, that it had quite succeeded in the case of another lady within the circle of her immediate acquaintance. The advice was taken ; but the patient became an early victim to her easy and thoughtless imprudence ; for after the lapse of four days she died of peritoneal inflammation.

The following case, greatly abridged, of rupture of the uterus has been communicated to the author by his valued friend Mr. Windsor of Manchester, and is here inserted to show the strong disposition of nature to repair the most serious accidents to which she is liable in the performance of her functional actions. The patient had been formerly the subject of uterine hydatids. Her last labour commenced naturally, but the waters were discharged before the mouth of the uterus had become dilated beyond the size of a half-crown piece ; and after continuing some hours with gradually increasing violence, all parturient pain suddenly ceased. No alarming symptoms, however, ensued. At the end of six weeks some appearances of an abscess were discovered near the umbilicus, which in about a fortnight gave exit to a piece of bone. This was followed in the course of the two succeeding months by many of the bones of the trunk and extremities, together with some of the more solid and undigestible portions of the patient's food ; while at the same time the cranial bones were escaping by the vagina. The patient's general health up to this period had not greatly suffered ; but now the alimentary substances were no longer discharged by the wound, the bowels became deranged, and death followed in a few days. Upon post-mortem examination, the small intestines were found firmly adherent to the uterus, and communicated with its cavity by four apertures. The undischarged fragments of the foetus, together with some feculent matter, were contained in the uterine cavity.

With respect to the use of medicines, we may generally observe, that full doses of opium might almost always be advantageously exhibited, both as a preventive when the accident is threatened, and as a sedative, immediately after it shall have been incurred.

When under the circumstances of the latter case the stomach is found to reject everything that is taken into it, together with the light grey vitiated bile, presenting the appearance of an infusion of powdered sage leaf, which is usually vomited soon after the rupture of the uterus, opiate medicines may be equally conveniently exhibited by the rectum in the form of enemata. If the rectum should be previously charged with feculent matter, it should be relieved by the injection of castor oil, or of any other aperient suitable for such a purpose, before the opiate injections should be administered. It is scarcely necessary to add, that when art interposes for the purpose of withdrawing the child, the placenta should be removed by the way of the vagina. After this is done, the only remaining manual duty would be to reduce, into the abdominal cavity, any portion of intestine which might be found prolapsing into the vagina, or greatly disposed to escape thither through the wound in the uterus: for if it were allowed to remain in that situation, and if we suppose that the uterus might recover tone enough to enable it to contract after the removal of the placenta, it is obvious that it would soon become liable to strangulation.

OF RUPTURE OF THE VAGINA.—This form of rupture most frequently takes place as an extension of a laceration of the uterus. In a small proportion of cases, however, the rupture is found to implicate the vagina only. Some writers have considered rupture of the vagina as much less fatal than rupture of the uterus; which indeed, when the injury does not communicate with the abdominal cavity, may be really the case. When on the other hand an intercommunication is effected between the vagina and the cavity of the abdomen, the author finds himself obliged to state, on the authority of all the cases for which he has ever been consulted, that the laceration is quite as fatal as similar injuries of the uterus itself. Ruptures of the vagina communicating with the bladder, without at the same time implicating the abdominal cavity, may be compatible with a considerable chance of ultimate recovery. It should however be recollected that such cases must ever be attended with want of power of retention of the urine. Dr. Merriman has met with two cases of extensive rupture of the vagina produced by a violent and ignorant practice of midwifery. "I have known," observes that very respectable author, "two instances of rupture of the vagina arising from the rashness of midwives who forcibly

dragged the children, enormously swelled, into the world. In one of them the vagina was split entirely through. Both the women died in a few hours. Had the abdomen of each child been punctured to give vent to the air, those fatal occurrences might have been avoided." Synopsis, p. 35, Edit. 3.

OF RUPTURE OF THE RECTO-VAGINAL SEPTUM.—A solution of continuity of this septum, which was produced by the undexterous use of the forceps, once came under the professional attention of the author. The laceration was one of considerable extent, and furnished an abundant passage for the feculent contents of the rectum into the vagina, through which they effected their escape exclusively, during the first thirty or forty hours after the delivery. The subject of the case was a hale young woman. The damage which she had sustained may be said to have occasioned no disturbance whatever of the general health; as the pulse on the first visit, and the same continued afterwards, could scarcely be said to be in any degree excited. Nothing was advised to be done, with the exception of removing the contents of the rectum, first by a large dose of castor oil given by the mouth, and then by an injection of the same remedy by the rectum. The current of *faeces* began to be evacuated by its natural passage on the third day after the first visit, and has continued so to be discharged ever since. Solutions of continuity of this septum may arise as a result of contusion consequent on long-continued pressure of the head upon it during severe labours.

OF RUPTURE OF THE BLADDER.—The occurrence of this misfortune during labour should in most cases be imputed to gross mismanagement. It is speedily followed by fatal peritonitis. The late Dr. Squire was consulted for a rupture of the bladder which had been occasioned by an over-distention of it from retroversion of the uterus in the fifth month of gestation. The patient died of peritonitis complicated with sphacelation of the lacerated wound of the bladder. That organ was found greatly thickened after death.

It once happened in the presence of the author that one of his professional friends unluckily carried the point of his perforator into the bladder, the injury to which was instantly followed by the evacuation of its whole contents. The patient however recovered, and, with the exception of the few immediately succeeding days, she has ever since possessed the power of retention. This it should be observed was a case of an incised wound. The



author has not at any time been fortunate enough to see a case of intercommunication between the bladder and vagina, occasioned by sloughing from contusion of their common septum, successfully treated. Women sometimes lose the power of retention of urine from a moderate degree of contusion of that tissue, without proceeding all the way to ulceration and loss of substance. There are few practitioners who have not occasionally met with cases of this kind, as consequences of tedious and difficult labours. When an aperture is distinctly felt to exist between the neck of the bladder, or upper part of the urethra and the vagina, the case may be considered hopeless, notwithstanding the confident boasts to the contrary, which we have occasionally seen expressed in our professional journals, published both in this country and abroad. The author has several times witnessed attempts to repair this damage mechanically, as well as by chemical stimuli ; but, as already stated, never with success. *Medic. Obs. and Enq.*, vol. iv. p. 58.

This class of ruptures, when communicating with very large branches of the uterine arteries, may terminate fatally, as may be seen abundantly proved in vols. i. and xiii. of the *Recueil Périodique de la Société de Santé* for 1797.

OF RUPTURE OF THE PERINEUM.—The rupture of this tissue is most commonly made in the direction of its length, commencing with the fourchette or posterior commissure of the os externum. It sometimes occurs during what may be called the last extremity of natural labour, when the head of the child makes its escape through the outlet of the parturient passage. It then for the most part takes place for want of due proportion between the resisting and the propelling powers, and especially from an obstinate indisposition on the part of the parietes of the passage to dilate, and to become sufficiently developed to give adequate room for the delivery of the foetal head. It sometimes would appear to occur from an excessive and premature exertion of the expellent action of the uterus, by which the perineal tissue is exposed to destructive pressure, before it has had time to become sufficiently developed. Nature is not often chargeable, although undoubtedly she sometimes is, with the inordinate violence here stated. When the latter stage of labour is tempestuous, the practitioner should be strictly on his guard at the moment when the child's head is about to make its escape through the external orifice of the vagina. This duty, however, has been elsewhere

sufficiently urged on the reader's attention. But the perineum is ruptured more frequently by the operations of art than by nature herself, and the rupture in that case may be produced either by the practitioner's hand or by his instruments. Sometimes it has been occasioned by violent attempts to perform the operation of turning. When these lacerations are of moderate extent, nature is found in many cases to repair the mischief very tolerably by a gradual carnification from the bottom of the wound, and consequent deposition of new materials to make up for loss sustained by the sloughings of its surface. This action may be conveniently promoted by occasionally touching the surfaces with a mild caustic. When the rupture extends as far as the sphincter of the anus inclusive, an attempt might perhaps be successfully made to connect the opposite surfaces together by ligature. These operations when adroitly performed, so as to leave the parts well adjusted and firmly connected, have been known in some rare cases to succeed; whereas unquestionably with the best care they much more frequently fail, in consequence of the ligatures tearing their way out and leaving the intermediate gap in a worse condition than before. In the management of cases of this description, the lower extremities should be bandaged together at the knees, with a pillow placed between them to prevent painful pressure.

The author has known more than one instance of cohesion of the ruptured surfaces of the sphincter ani, and of recovery of its power of retention of the *fæces*, after it had been snapped across by the extension of a rupture of the perineum. This result has taken place even without any assistance of art either manual or instrumental.

The child's head has sometimes forced its way through the perineum transversely, leaving its anterior portion, which connects it with the external orifice of the vagina, unruptured. A case of this description occurred a few years ago in the practice of the late Mr. Gaitskell, of Rotherhithe. Consult also the following references for similar cases:—Denman's *Midwifery*, c. ii. sect. 7. Merriman's *Synopsis*, Appendix 21, where the author records a very interesting case of transverse rupture of the perineum. See also several very important cases of the same description by M. Sédillot, *Journ. Gén. de Méd.* vol. lvi. p. 177.

In attempting to repair injuries of the perineum by art, con-

trivances should be made to prevent the lochial discharge from coming in contact with any part of the wounded surface. One variety of such contrivance might be a smooth wooden tube of about six or seven inches long, introduced into the vagina. It should be of sufficient diameter to admit of being charged with a longish piece of sponge, which on being pretty firmly applied to the distilling orifice of the uterus, might be made to conduct every particle of the lochial secretion beyond the os externum. But any other expedient, that should effectually prevent the wound being touched by the lochial secretion, might often contribute to repair a damage which is seldom benefited by any of the modes of treatment hitherto resorted to for that purpose.

For references to cases bearing on this subject, the author is compelled, by his prescribed limits, to refer the reader to his 4th edition, pp. 1077 to 1082.

OF LABOURS COMPLICATED WITH DISEASED CONDITIONS AND POSITIONS OF THE UTERUS, AND OTHER ANOMALIES.—The late Dr. Harrison, some years ago Teacher of Pathology at the Medical School of St. George's Hospital, once presented to the author a portion of a carcinomatous uterus, in which had been found, on examination after death, an ovum of ten or twelve weeks' gestation reposing on a superior part of the interior of the organ, on a tissue comparatively healthy. The portion of the uterus presented to the author was greatly diseased.

A patient of the Northern Dispensary sought the author's assistance, on account of a hæmorrhage from the uterus with which she had been repeatedly visited, although she stated herself to be then advancing towards the seventh month of gestation. A short time previously, the flooding had been very profuse; which made it proper to examine the state of the uterus per vaginam. The vaginal portion of the womb was found greatly enlarged and diseased, but the woman asserted strongly that she had advanced in her pregnancy to the time which she had before stated. At the full period of her gestation the usual phenomena of parturition presented themselves, and she was delivered after a very tedious and difficult labour of a still-born child. After this event she in some degree rallied from the state of great depression in which her previous gestation and parturition, both extraordinary in their circumstances, had implicated her general health. She survived the puerperal state for a period of about ten weeks.



On inspection of the body after death, the uterus and the vagina, together with their contiguous viscera, were found mutually adherent or otherwise matted together into one enormous mass of cancerous disease.

LABOURS MAY BE COMPLICATED WITH EXTRAORDINARY OR DISEASED STATES OF THE CONTENTS OF THE UTERUS; such, for instance, as when gravid with twins, one of the ova being healthy and the other diseased, or perhaps even putrified: or there may be an unhealthy condition of the ovum, or of its placenta; or the amnion itself inflamed, thickened, and prodigiously developed, may contain many quarts, or even gallons of liquor amnii; or, finally, the gestation may be rendered complicated, and the birth more difficult and responsible, in consequence of preternatural and monstrous formations of the foetal subject. Cases of this description, which may not come to be especially considered in our fourth class of labours, must be treated according to their respective indications.

OF DESCENT OF THE UTERUS DURING ADVANCED GESTATION AND PARTURITION, AND OF INVERSION OF THE UTERUS IMMEDIATELY AFTER LABOUR.—Inversion of the gravid uterus may take place during its last effort in expelling the head or any other presenting part of the child, provided the navel-string should unfortunately be too short. In the 4th edition the reader may consult numerous references and cases illustrative of these diseases; from the average of which and of many more which might have been collected, the author may perhaps be permitted to offer the following remarks in the form of inferences.

1. Prolapsion and procidentia of the gravid uterus may take place at very advanced stages, and even at the full period of gestation:—

2. The action of parturition has supervened under the actual condition of the gravid womb here alluded to.

3. In some cases the gravid uterus, when prolapsed beyond the external orifice, has been safely reduced into the abdominal cavity and subsequently retained its ovum. It has then naturally and at its full period become the subject of the parturient function.

4. In other cases the ovum has been withdrawn by artificial means; as by the operation of turning, by the forceps, and by dividing the orifice and part of the neck of the uterus with cutting instruments.

5. In a small proportion of cases, when the pregnant uterus has been found prolapsed beyond the os externum, different parts of its surface have exhibited appearances of inflammation, suppuration, inequalities from cicatrization, and other diseased conditions.

6. When reduction of the gravid uterus at an advanced period of gestation can be moderately, easily, or even perfectly safely effected, it should be preferred to every other mode of treatment, as it would obviously replace the uterus in its natural position, where of course it is to be expected it would most conveniently and prosperously execute the great function which it will have ultimately to perform.

7. Cutting operations, which in many cases have ended fatally, should always be avoided, excepting under extreme forms of impediments within the cervix, or of obliteration of the orifice of the uterus.

8. After the failure of the treatment by simple reduction, and the delivery becoming a peremptory indication, the practitioner would generally find it his safest course to effect that object by reducing the bulk of the foetal head. It would even be preferable to reduce the bulk of every part and limb of the foetus, than to notch or make incisions into the orifice and cervix of the mother's uterus.

9. After the extraction of the child and removal of the placenta shall have been effected, reduction of the womb would be found of easy accomplishment. Any phlogosis of the prolapsed uterus should however be subdued, if practicable by the use of fomentations and the abstraction of blood by leeches from the inflamed surfaces, before any attempts should be made to replace it. Great caution might be required in order to come to a right judgment with respect to the application of leeches to the uterus under such circumstances.

1. INVERSION OF THE UTERUS in a state of great development may be the result of traction applied to its interior surface, either in consequence of the attachment of diseased contents, or as a result of too much pulling of the umbilical cord in removing the placenta. Deficient length of the umbilical cord may indeed be considered as furnishing both a predisponent and occasional cause of the accident. Cases have been known of the umbilical cord not exceeding two inches in length. Under such circumstances what is so likely to happen as inversion of the uterus,

complicated most probably with a profuse discharge of blood? The only treatment which could meet the exigency of a case of that kind, would be the separation of the placenta, and immediate reduction of the inverted womb.

2. Under the circumstances now supposed, the death of the subject has often taken place in less than half an hour after the accident. Hence the expediency of admitting of no delay in the use of preventive measures.

3. The nature and even the fact of the accident have often not been discovered till after the lapse of many days, weeks, or months subsequently; and in a smaller proportion of cases, not till after the death of the subject.

4. Some women who become the subjects of inversion of the womb, not only survive its displacement for many years, but also escape in a surprising degree its ordinary consequences.

5. More frequently this displacement of the womb, when not speedily fatal, is attended by exhausting hæmorrhages, both periodical and occasional, as well as by other forms of morbid profluvia.

6. The uterus has been removed by ligature, both with and without the addition of excision below the ligature. But this subject has already been sufficiently discussed. From the results of the cases he has himself seen, the author feels quite prepared to recommend strongly the extirpation of the inverted womb, in all cases where the health is found to sustain much injury from the previous malposition. The operation is best performed by passing a double ligature through the centre of the inverted neck, and including within each loop its own moiety of the entire substance to be strangulated. If previously within the cavity of the pelvis, the inverted womb should be brought down so as to appear beyond the labia. In this situation it is manifest that great advantage must be secured, for the easy and effective application of the ligature, as well as for the subsequent excision of the part below the ligature.

LABOURS COMPLICATED WITH HERNIA will require the exercise of great vigilance on the part of the medical attendant. They are very apt to be further complicated with hæmorrhage after delivery; for the treatment of which the practitioner should be well prepared. Among the precautions to be adopted in such cases, the abdomen, even before the expulsion of the child, should be somewhat firmly bound round with a broad bandage, so applied



as to admit of being gradually more and more tightened, after the delivery shall have been completed.

Instances have occurred of PROTRUSIONS OF PARTS OF THE OMENTUM, together with portions of the intestines. Such cases might lead to serious results, and should have the benefit of the most adroit management, as well as of the intelligence of the most competent consultations. See references to cases in the 4th edition.

In very severe labours, examples are sometimes met with of the process of parturition being complicated with EMPHYSEMA, in consequence of the mechanical injury sustained by the cellular structure of the lungs. Bleeding in ample quantities should be resorted to during the intensity of the labour, and the case in other respects should be treated according to the indications of its several symptoms. *Edinb. Med. and Surg. Journ.*, vol. vii. p. 174.

Another form of complication, which is sometimes, although not very frequently produced by violent exertions during the process of parturition, is a spontaneous elongation or other form of enlargement of the anterior lip of the uterus, which has been occasionally known to prolapse beyond the external orifice to some distance, and for many hours before the final expulsion of the head. The best treatment to be adopted for the relief of such cases is ample general bleeding; and in the worst forms, the application of leeches to the tumefied parts. The labour in other respects should be treated on ordinary principles. Cases of spontaneous elongation of the anterior labium of the uterus during parturition, by Professor Duclos of Thoulouse; *Bulletin de la Faculté de Méd. de Paris*, 1818, No. 9.

The author has yet to notice a complication of which he has seen only one example, viz. that of prolapsion of the rectum during parturition. The subject was a patient of a lying-in institution, the services of which are especially confined to the western parts of the metropolis. The case had been long neglected by the practitioner whose duty it was to assist and relieve it. When the present reporter of it was first consulted, the whole of the rectum, with part of the colon, was found in large coils thrown irregularly on the patient's bed, and attaching to her person. Its mucous surfaces were strongly injected with blood; which gave it the appearance of being incipiently inflamed. It was greatly distended with gas. The

extrusion of the intestine had taken place at the same moment with the birth of the child ; and it had remained for several hours in the same state in which the author found it. After examining into the conditions respectively of the uterus and the vagina, its reduction was attempted and finally effected in the presence of Mr. Tucker of London-street, Fitzroy-square ; who was called first to the case, on account of the patient's extremity in the absence of the salaried officer, whose proper duty it was to give his professional attendance. After the reduction was effected, directions were left for ample bleeding, and for the exhibition of a full dose of opium. For parallel cases, see Burton's Midwifery, obs. 16, p. 169 ; and Smellie's Midwifery, collect. xlv. cases 5 and 6.

## CHAPTER XVI.

## CLASS IV. OF INSTRUMENTAL LABOURS.

THE process of child-birth being ordinarily a natural and a healthy function, it rarely requires or can be benefited by the aid of artificial powers. To this established law, however, there are occasional exceptions; inasmuch as the function of parturition, like all other vital actions, is liable to morbid influences, and perhaps, more than any other, to mechanical obstructions and impediments. To assist nature in overcoming the difficulties which are thus casually opposed to her, is properly the province of instrumental midwifery. When this object is attained compatibly with the preservation both of the mother and her offspring, and without inflicting a serious injury on either, then indeed is the triumph of our art complete. But the difficulties of some unfortunate cases are so great and of such a nature, as to compel us, in our treatment of them, to restrain our hopes of success within narrower limits; and to direct our principal, or exclusive efforts, to save one life; and of course preferably, if practicable, the more valuable life of the mother. Hence obstetric instruments have usually been distributed into two classes: the first consisting of two or three varieties of power, possessing in common the competency of being used compatibly with the preservation both of the mother and her offspring; and the second, including all cutting instruments, and such as may be required to be used as auxiliary to cutting instruments, and therefore necessarily implicating either the certain destruction of life, as in embryotomy, or much risk of it, as in the case of the Cæsarean section.

OF OBSTETRIC INSTRUMENTS OF THE FIRST CLASS, CONSISTING OF THE FORCEPS, LEVER OR VECTIS, BLUNT HOOK, AND A STILETTE, OR AN INSTRUMENT FOR RUPTURING THE FETAL MEMBRANES.

OF THE MODERN OBSTETRIC FORCEPS.—The first notice of a pair of forceps without teeth, and called by its author "*FORCIPEM QUAE DENTES ERUUNTUR*," was given to the profession in a work published in the year 1554, concerning Human Conception and Generation, by Jac. Rueffe, at Zurich. This suggestion for the modification



of the teeth forceps then in use, remained, however, a dead letter for more than a century; and is little if at all entitled to the merit claimed for it by several German writers, of having been the parent principle of the modern obstetric forceps. The author, on the other hand, feels disposed, in common with most of his countrymen, to attribute the honour of having actually invented that instrument, as consisting of two separable and distinct counterparts, the one capable of being introduced into the pelvis without the other, to Dr. Chamberlin of London. The essential property, by which the instrument of the Chamberlins was distinguished from all other forceps of previous date, was its resolvableness at pleasure, into two separate counterparts. It does not appear to the author probable that any instrument of the forceps kind, devoid of this property, could be made available to the purpose pretended to have been indicated by Rueffe, that “OF EDUCTING, COMPATIBLY WITH THE PRESERVATION OF LIFE, ID QUOD PROTRAHENDUM ERAT.” The instrument of the Chamberlins POSSESSED, AND WAS THE FIRST THAT REALLY DID POSSESS, THIS PROPERTY; which, in addition to the fact that the English family of that name were actually proprietors of such an instrument many years before the date of Palfyn’s claim, is now established upon the most irrefragable evidence. In a short but important communication, made by H. H. Cansardine, Esq. to the Medico-Chirurgical Society, which was read at its meeting of the 17th of May, 1818, and afterwards published in the ninth volume of its Transactions, we have the following most interesting and decisive statement:—

“In depositing the obstetric instruments of the Chamberlins among the archives of the Medico-Chirurgical Society, I beg to offer a few facts and observations which may serve to authenticate their genuineness and their originality.

“The estate of Woodham Mortimer Hall, near Maldon, in Essex, was purchased by Dr. Peter Chamberlin, some time previous to 1683, and continued in his family till about 1715, when it was sold by Hope Chamberlin to Mr. William Alexander, wine-merchant, who bequeathed it to the Wine Coopers’ Company. The principal entrance to the mansion is through a porch, the masonry of which being carried up with the building, serves as closets to its respective stories. Two or three years ago a lady, with whom I am intimately acquainted, and from whom I had the particulars, discovered in the floor of the upper closet

a hinge ; and tracing the line, she saw another ; which led to the obvious conclusion of a door ; and this door she soon found means to open. There was a considerable space between the floor and the ceiling below, in which were contained divers empty boxes, etc. Among these there was a curious chest or cabinet, in which was deposited a collection of old coins, trinkets, gloves, fans, spectacles, etc., with many letters from Dr. Chamberlin to different members of his family, and also these obstetric instruments. Being on terms of intimacy with the family resident at Woodham Mortimer Hall, the instruments have been presented to me ; and I have now the satisfaction of depositing them with your Society, for the gratification of public curiosity, and to secure to Chamberlin the meed of posthumous fame due to him for his most useful discovery.

“ With respect to these instruments, I would briefly observe, that they appear to me to contain within THEMSELVES the most direct and conclusive evidence of originality of invention ; and that even the progress of this invention may be distinctly traced in its different stages through the mind of the inventor. First we have a simple vectis, with an open fenestra, supposed to be of much more recent invention. Then we have the idea of uniting two of these instruments by a joint ; which makes each blade serve as a fulcrum to the other, instead of making a fulcrum of the soft parts of the mother ; and which also unites a power of drawing the head forward. This idea is at first accomplished by a pivot, which being RIVETTED, makes the instrument totally incapable of application ! Then he goes to work again, and having made a hitch in each vectis for the joint, he fixes a pivot in one only, which projecting, is to be received into a corresponding hole in the other blade, after having been applied SEPARATELY. It may be observed, that although there is a worm to the projecting part of the pivot, yet there is no corresponding female screw in the hole which is to receive it. Every practical accoucheur will know that it is not easy, nor always possible, to lock the joint of the forceps with such accuracy as to bring these pivot and hole into mutual contact. This Chamberlin soon discovered ; and NEXT produced a more light and manageable instrument, which, instead of uniting by a pivot, he passes a TAPE through the two holes, and winds it round the joint ; which method combines sufficient accuracy of contact, security, and mobility.

- “From the roughness of the workmanship, I am led to conclude that Chamberlin was his own artificer: a practice, I am told, not uncommon in those days, when mystery and empiricism were not regarded as contemptible, even among the enlightened professors of science.

“London, February 6, 1818.

H. H. CANSARDINE.”

Notwithstanding the extraordinary caution of the family of the Chamberlins, not to injure the interests of their monopoly by a liberal disclosure of their secret, it seems upon the whole probable, that some one or more of their contemporaries got an intimation of its principle. In a work entitled *The Female Physician*, published in 1724, Dr. John Mowbray, p. 276, reprobrates the use of an instrument called by him an *Eductor*, professed to be used by certain masters of the art in his time, for delivering living children.

Dr. Hugh Chamberlin, and a Mr. Drinkwater, a surgeon, who practised midwifery at Brentford, were contemporary practitioners, during at least five-and-twenty years of their respective lives. That Mr. Drinkwater was one of the masters of the art who possessed the dangerous arcanum of Mowbray, may be presumed from the known fact, that a pair of forceps were found amongst his effects at his decease. “I have a pair of forceps,” observes Dr. Robert Wallace Johnson, in his *System of Midwifery*, p. 170, “which did belong to Mr. Drinkwater, late surgeon and man-midwife at Brentford, who began practice in 1668, and died in 1728. The size and form of this pair agree with those of Chapman and Giffard.” It is well known that Giffard made use of his instrument, which he called *EXTRACTOR*, and was actually a pair of forceps, of which he made use, sometimes employing one blade, sometimes both, during several of the latter years of his life. His “*Cases in Midwifery*” were published after his death by his surviving friend, Dr. Hody, in 1733.

Palfyn, of Ghent, published the first account of his forceps in 1722. But whether he derived a knowledge of its principle from London or Amsterdam, both of which places he had more than once visited before the date of his publication, on purpose as has been said, to find out this secret; see Dr. Friedrich Benjamin Osiander’s *Lehrbuch der Entbindungskunst*, erster Theil, Göttingen, 1799, s. 224; or whether he was really *AN INVENTOR*, although now unquestionably proved *NOT THE ORIGINAL INVENTOR* of the forceps, must probably remain for ever undetermined. At all events,



he is entitled to credit for the liberal and honourable policy which induced him to publish his secret to the world.

The forceps of this period, of which there were at most but few specimens, were heavy and clumsy instruments; and certainly but ill adapted to their proper and essentially gentle purposes. About the time however to which we have to refer the date of these facts, the practice of midwifery was passing rapidly from the hands of the midwives to those of educated surgeons; and thus important opportunities were furnished to the latter for studying the mechanism of natural birth, and for ascertaining with more accuracy than had been done by their predecessors, the facts and causes of its occasional difficulties. Among the results of these opportunities, were the improvements which were made in the construction of the obstetric forceps, by the then most distinguished practitioners of Europe; especially by M. Levret in France, and Dr. Smellie in England. The new curve, or that in the direction of the edges of the blades, was given to this instrument by the celebrated Levret, for which, in common with many other improvements, our profession is under important obligations.

Levret's instrument was made lighter, shorter, and much more commodious; by the late Dr. Smellie; who was the first practitioner in England who bestowed much attention upon obstetric mechanics. Dr. Smellie was, in a great measure, a self-taught artist. He left, however, the impress of a happy and varied genius on all his excellent and substantially useful works.

The forceps of Levret and Smellie have served as the bases of almost all the changes and modifications which have taken place in the structure of that instrument since their time; and it may be considered as no little compliment to the talents of these eminent individuals, that the productions of their respective countrymen, on the same subject, have usually borne strong family likenesses to their parent prototypes. It appears to the author, however, that the occasional attempts which have been made in each country to improve on the models of Levret and Smellie have generally not been remarkably successful. As an apology for this want of success, we may perhaps observe, that the proper mechanics of midwifery have not been made the subject of much study since the time of the above distinguished masters. The following analytical sketch will enable the reader to appreciate the merits of a few of the more successful efforts of this kind.

**THE FRENCH OBSTETRIC FORCEPS.**—In the common French forceps, we have a combination of the following properties: a prodigious power; a curve in the direction of the edges of the blades; the blades themselves nine inches and a quarter in length, one inch and seven-eighths broad at the broadest part, one-fifth of an inch thick; somewhat hollowed out and fenestrated; handles of steel of great strength, and bluntly hooked at their extremities; and a pivot and mortise lock not difficult to adjust. The entire instrument, the one for example now generally used by M. Capuron, measures eighteen inches and a quarter in length, and weighs two pounds and one ounce avoirdupois. The counterparts of the instrument being duly adjusted, and the ends of the handles brought into mutual contact, the intermediate space between the most opposite parts of the blades, at the convex edges, is two inches and three-quarters, and that between the corresponding parts of the concave edges two inches and a quarter.

The author's objections, to the French forceps now described, are principally the following:—

The blades being so narrow, and of a form not calculated to embrace the child's head by many points of contact, can have but an inadequate purchase of their object, notwithstanding the great thickness of the blades, and their general bulk and weight of metal. We accordingly find most French authors representing their forceps as liable to slip, and laying down rules and cautions for the prevention of that accident. But the slipping of a pair of forceps, over a foetal head rather more than proportionally bulky relatively to the dimensions of the pelvis, can scarcely fail to expose the soft parts of the mother to very serious mischief. On the other hand, if that accident is to be prevented as directed by the partisans of the French forceps, by compressing the head with a force proportioned to the difficulty and tediousness of the operation, it must inevitably follow that the child's life will be exposed to proportionally greater danger.

The narrowness of the blades of the French forceps is such, that no portion of the foetal head can engage within their fenestræ. However obvious this fact may appear on inspection, and especially upon the application of the instrument to the foetal skeleton head, we nevertheless seldom meet with a French writer who does not maintain, that the fact is directly the reverse of what is here stated. Again, when it is considered that

each blade of the instrument is at least one-fifth of an inch in thickness, and that both together therefore must form an addition to the lateral diameter of the foetal head of two-fifths of an inch, it would seem questionable, whether in cases of difficult births arising from a deficiency of space within the pelvis, such an instrument could be used with any reasonable prospect of advantage.

With respect to the immense weight of metal of this instrument, that fact can scarcely be urged as an objection to it, excepting in connexion with the dangerous property already noticed, viz., the extravagant thickness of its blades. Its power is no doubt extremely disproportionate to the very gentle and limited force required, or even permitted to be used in proper forceps cases; but still the author is not prepared to say, that a careful and dexterous practitioner may not use it in certain cases requiring this kind of artificial assistance, with PERFECT SAFETY.

Again, the old curve of the French forceps, viz., that of which the concave surface is intended to correspond with the convex surface of the foetal head, is a section of much too large a circle to admit of any considerable extent of mutual apposition between the convex lateral surfaces of the head, and the concave surfaces of the blades of the instrument. The curve in question is that of a section of a circle, of which the radius is fifteen inches; whereas the average curve of the foetal head along its lateral convexity, is a section of a circle of which the radius does not exceed ten inches. Hence it happens that when this instrument is adjusted, or rather attempted to be adjusted, to a foetal head of standard dimensions, the lateral diameter from one parietal protuberance to its opposite being supposed to be equal to three inches and a half, the points of the blades cannot be made to approach within a nearer distance of each other than two inches and three-eighths; nor can any portion of the blades come in contact with any part of the foetal head, or side-face, anterior to the ears.

Now, what must be the inevitable consequence of so prodigious a want of correspondence between the instrument and its object? It is obvious, that in order to avoid the accident of slipping, so constantly the object of apprehension in French practice, a small part of the head, not exceeding in any direction an inch and a half of surface, must be exposed to a tremendous pressure; and yet without affording to the operator half the power of purchase which, with a better-constructed instrument, he would be able to command.



The author does not particularly object to the mode of locking the forceps usually adopted by the French. Made on the principle of the pivot and mortise of the simplest kind, the French lock is indeed a piece of mechanism which must admit both of easy and steady adjustment. But still, if it were worth while to dispute a point of no great importance either way, the author must express his preference of the English mode of locking, both as being more simple and more ingenious. On the other hand, the locality of the French lock, which is a principle of much more consequence in practice, is decidedly preferable to that of the English.

VARIETIES OF THE COMMON ENGLISH FORCEPS.—The common forceps of this country, as improved by Smellie and, with some modifications, adopted by almost all his successors among British practitioners, are, in the author's opinion, decidedly superior to the French forceps. Their size and weight are more accordant with the proper intention of the instrument; that of assisting a natural function, without at the same time inflicting a positive injury either upon mother or child. The average length of the London forceps, including the several varieties of Smellie, Denman, Osborn, and Haighton, is about eleven inches and a half to twelve inches; and their weight, with some variation, averages between ten ounces and three quarters, and thirteen ounces and a half, avoirdupois: their difference of weight mainly depending upon the different length of their shanks, by which is meant the parts intermediate between the lock and the fenestræ. The narrowness of the blades is as much an objection to the majority of English forceps as it is to the French; as in all of them, with the exception of Dr. Haighton's, the fenestræ are much too small to receive the parietal protuberances of the child's head. The adoption of Levret's curve in the direction of the edges of the blades, as in those of Osborn and Johnson, is an obvious improvement upon the single curved forceps of Smellie.

The English method of locking, which is effected by means of a deep groove or mortise of a peculiar kind, open at one end on the corresponding sides of either blade, and placed at the handle-ends of the shanks, so that the counterparts of the instrument being crossed, each is received into the mortise of the other, is justly considered by almost all British practitioners, as a simpler and an easier mode of effecting that object than any other that has hitherto been proposed. Whilst thus decidedly approving of

the principle of the English lock, the author nevertheless has to object to its usual locality ; the practical inconvenience of which having been, as he is disposed to think, the main reason why the principle itself has been so generally rejected by foreigners.

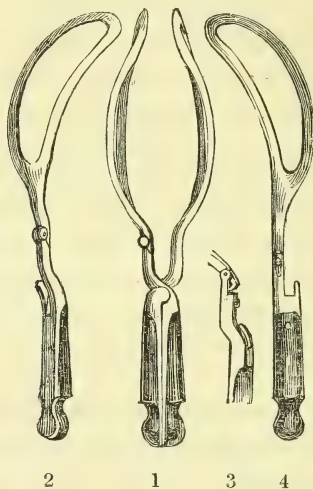
In a majority of cases requiring the use of the forceps, the locking of the small English forceps takes place immediately at the outlet of the vagina, where the important tissues there situated, being more or less disturbed and distended by the movements of the instruments, are much exposed to contusion and entanglement, during either a careless or a difficult adjustment of the lock. From what the author has himself known and seen of the extreme caution required to prevent the occurrence of these accidents, and of the tendency of the least injury so sustained to be propagated to some distance upwards along the perinæum, he feels very confident that this bad property of our short forceps is a most pregnant cause of misadventure in practice.

**THE AUTHOR'S COMMON FORCEPS.**—The instrument now to be described, while it presents perhaps the features of a more decided family resemblance to the common English forceps, will nevertheless be found to embrace some of the better properties of those of France and Germany. The length of this entire instrument is between eleven inches and a half and twelve inches and a half, English measure ; this difference being made to depend on the discretion of the possessor as to the length of the handles. The length of the blades, from the commencement of their separation at their shanks, marked by a short transverse line, plate xxxii. (of the Atlas), fig. 1, to their respective points, is about six inches and a half, or six inches and five-eighths. The length of their shanks, from the commencement of their separation at the line already mentioned to their point of crossing each other at the lock, is one inch and three-eighths ; and the length of the handles, including the lock, is about four inches and a half, something more or less, at the owner's discretion.

The general characters of this instrument may be readily understood by the assistance of the subjoined woodcut. The figure marked 1, represents the instrument entire, and its blades in apposition ; and those marked 2 and 4, its respective blades. The figure marked 3, is intended to show the mechanism of the lock.

The weight of a well-made pair of forceps of this construction

should not exceed thirteen ounces and a half; the excess over the weight respectively of those of Denman and Osborn depending upon the greater length and strength of the shanks. It will be observed, that the blades are much broader than those of any



other English forceps, with the exception of Haighton's; and as far as the author knows, than those of any foreign specimens without exception. Without, however, the amount of width here given to the fenestræ, viz. an inch and five-eighths at their widest part (see Atlas, pl. xxxii. fig. 1, dotted line marked c c), they will not be competent to receive any useful portion of the foetal head within their frames, notwithstanding the assertions so universally made by authors to the contrary. Let any gentleman apply Denman's or Osborn's forceps to regularly-formed foetal heads, or to skeleton heads, and he will be immediately convinced of the correctness of this statement. The blades of this instrument are not only broad and fenestrated like Haighton's; but they are much more hollowed out interiorly than those of any other forceps that the author has ever seen. They are thus adapted to lie in close contact with every part of the child's head to which they are applied, and to admit of the reception and firm purchase of extensive portions of its lateral parietes.

The foetal head being somewhat differently curved at different parts of its surface, it has been attempted to dispose of the curvature of different portions of the blades of the instrument



accordingly; so as to ensure, as much as possible, equal contact and equal pressure upon all parts of the head where the fangs or frames of the fenestræ ought to be in apposition. An obvious effect of this mechanism of the blades is a prodigious increment of strength, compatibly with very small dimensions both as to breadth and thickness of their frames. This peculiar structure was suggested by repeated applications and careful fittings of several varieties of forceps to the heads of new-born children. From the actual width of these fenestræ, and narrowness of the frames surrounding them, the more prominent parts of the head are allowed to escape through their apertures to some distance beyond them, and indeed into full contact with considerable tracts of the vaginal parietes.

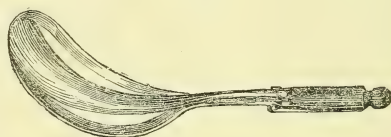
It being occasionally necessary that the child's head should be subjected to some compression, that result is provided for by an adequate strength which is given to the shanks, and the metallic parts of the handles, as also to the posterior portions of the fangs. But these latter are gradually made thinner as they advance forward, so that towards the middle of the blade they do not exceed in thickness one-twelfth part of an inch.

This instrument, in common with Osborn's, adopts the curve in the direction of the edges of the blades, as suggested by Levret. In four out of five cases of operations with the forceps, this peculiar form of it entitles it to great preference over the single-curved forceps of Denman and Haighton: whereas for the remaining cases, viz. those having the foetal face directed to either side of the pelvis, a pair of forceps perfectly new in principle has been especially provided.

It has been already stated, that the common English forceps are objectionable on account of the extremely inconvenient position of their locking parts. This inconvenience is completely obviated in the construction of the forceps which are here proposed, by adding about an inch and three-eighths to the length of the shanks of the common forceps. These shanks, after the crossing of the counterparts of each branch at the lock, are carried forward towards their respective blades, during the whole course of their lengthened part, in a parallel direction to each other, and at a distance from each other of about three-eighths of an inch. By this parallel elongation of the shanks, the locking part is of course necessarily removed in the same proportion further back, or towards the handle-end of the instrument.

The right-hand blade, viz. the blade which is made to correspond with the right side of the pelvis when introduced, has been made flexible at its shank by a very simple contrivance. See Atlas, pl. xxxii. fig. 3, or the preceding wood-cut, fig. 3. By means of this joint, the handle is made to bend outwardly. Without laying any great stress upon this unimportant expedient, it is to be observed that it may add occasionally to the facility of introducing the right-hand branch of the instrument. It is an advantage, however, if any, which can only apply in English practice, and in that of a few other countries, where the custom prevails for women to be delivered lying on the left side.

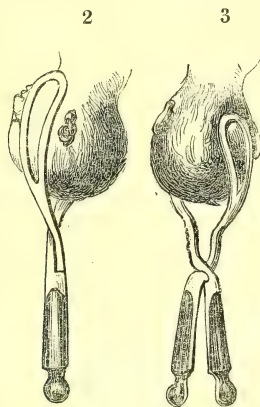
**FORCEPS WITH BLADES OF UNEQUAL BREADTH.**—We have already seen how important it is to be able to embrace large portions of the foetal head within the fenestræ of the forceps. On account, however, of particular conformations of the pelvis, or of certain inconvenient positions of the child's head, an instrument with two broad blades may not be at all times perfectly easily introduced. To meet the peculiar indications of cases of this kind, the reader will find in plate xxxv. fig. 1, a useful modification of the obstetric forceps. This variety is shown in the wood-cut. The auxiliary blade represented as the



right-hand branch is very narrow compared with its broader counterpart. It is thus, as may be observed, made to fit at the joints the counterparts of the common forceps. The auxiliary blade may be either fenestrated or not, to suit the taste of the possessor; and its shape differs from that of one of the branches of Osborn's forceps in the length of the shanks.

**FORCEPS WITH BLADES OF UNEQUAL LENGTH.**—Considering the perfect suitableness of the mechanical powers proposed to be used for overcoming the mechanical obstacles concerned in laborious parturition as a matter of extreme importance to the results of obstetric operations, the author has furnished himself with forceps, specially adapted to cases of the third and fourth positions of the foetal head within the pelvis; viz. the positions with the face directed to the right and left sides of the pelvis respectively. The blades of these instruments are of unequal

length. The longer is intended to apply to the latero-frontal parts of the foetal head and face; while the shorter blade is to be carried up in the direction of the opposite termination of the same diameters, so as to correspond to one or the other of the sacro-iliac junctions, and applied to an occipito-lateral part of the foetal head immediately behind the ear. But these modifications of the obstetric forceps will be more particularly described and better understood when we come to give rules for the application of the instrument in the third and fourth instrumental positions. See Atlas, plate xxxviii. fig. 2 and 3. These instruments are also shown in the wood-cut.



A MODIFICATION OF FORCEPS, WITH BLADES OF UNEQUAL LENGTH. —In plate xxxix. is given a representation of another form of forceps, with blades of unequal length. Cases of arrest or suspension of uterine action are occasionally met with, where considerable benefit might be derived from a very moderate amount of mechanical assistance; where however there might be a motive for applying a principal part of the artificial force deemed useful in one particular locality, relatively either to the foetal head, or to the cavity of the pelvis. For cases of this description a short blade has been adapted to correspond with, and chiefly for the purpose of acting as a fulcrum to, one of the broader blades of the common forceps. The small-bladed instrument is not curved in the direction of its edges, so that it will act equally well with either counterpart of the broad-bladed forceps.

OF THE LONG FORCEPS.—The instrument which in this country is known by the designation of long forceps, is a pair of forceps



of sufficient length to admit of being applied to the foetal head before it has entered into the cavity of the pelvis. For a certain proportion of such cases a peculiar modification of the forceps is here proposed, which, in the author's opinion, is much better calculated to answer its special indication than any other variety of the instrument that he has yet seen. For representations of the different parts of the instrument, see pl. xxxvi. and xxxvii.

OF THE CIRCUMSTANCES INDICATING THE USE OF THE FORCEPS IN THE PRACTICE OF MIDWIFERY.—1. The first and most important indication for the use of obstetric instruments of any kind, is a positive and well-ascertained insufficiency of the natural powers to accomplish the act of parturition with safety to the lives and structures implicated in the process.

2. The use of the modern forceps presumes also upon a sufficiency of space within the pelvis to admit with the aid of that instrument of an eventually living birth.

3. But even then, the forceps can only be used with propriety when their application is judged upon the whole preferable to all other modes of delivery.

4. Cases of head presentations are generally considered, at least in this country, as the exclusive objects of treatment by this class of instruments.

5. Inasmuch as the forceps cannot be used without exposing the mother to some degree of inconvenience, if not of positive injury of structure, they should never be employed for delivering dead children.

The first indication for the use of instruments as here founded on the insufficiency of the unassisted natural powers to accomplish the act of parturition with safety to the lives and structures interested in the effort, is of course now propounded in its most general and comprehensive sense, as dependent upon or, as in different cases, produced by a great variety of circumstances. An accurate knowledge of the nature and operation of the circumstances here referred to, forms indeed an essential attribute of a medical practitioner's competency to judge correctly of the duty, and finally to determine upon the expediency of having recourse to the aid of instruments. This kind of knowledge, like every other, is more or less capable of being analysed and deliberated upon as to its principles, and of being methodically distributed into rules and precepts in its practical application to its objects.

The causes of difficult parturition, tending to occasion difficulties eventually productive of exhaustion, have been usually arranged by practical writers under two heads: viz. the want of sufficient action of the parturient organs; and the want of sufficient space to admit of the child being propelled through the pelvis at the ordinary expense of power exerted in the process.

The want of sufficient action of the uterus, and of the other organs usually consenting with and assisting it in the business of parturition, may depend either upon the absolute want or absence of the power required; or simply upon its inadequate exertion, the power itself being present, but operating with great irregularity and feebleness, or perhaps oppressed by influences difficult either to recognise or to remove.

The want of sufficient power, as an inherent principle of the parturient organs, is of extremely rare occurrence; and indeed the author is much disposed to doubt its existence, excepting as an effect of its exhaustion from long-continued action, or as an accompaniment of some important disease of the uterine system.

There is probably no word in the language of midwifery that is more frequently misapplied than the term EXHAUSTION, as sometimes used in connexion with cases of tedious and laborious parturition; and certainly none in the use of which it is more important to be precisely and practically correct. It is indeed the constant language of the puerperal chamber, and during every stage of a labour, with the exception of two or three of the first hours, that "the patient is greatly exhausted;" whilst, after the lapse of twelve or twenty hours, it often becomes a duty of no easy performance to the practitioner to support the spirits and to calm the fears of all the parties concerned. To warrant his active interference, the medical attendant must, however, obtain more substantial evidence for the fact of an exhausted state of the parturient powers than the mere sensations of the patient or the alarms of her friends. Experience proves, that the efforts of labour are required to be exerted with extraordinary vigour, and for a long time, in order to produce a state of the agents of parturition even approaching to what might deserve the name of exhaustion. The correct application of the term exhaustion must obviously bear reference to the previous strength of the woman, to the vigour and frequency of the parturient efforts, to the form of the pelvis, to the condition of the soft parts concerned in the process, and in a certain degree to the

reduced state of the constitutional powers, together with many other circumstances. The author does not remember having ever witnessed such a state of the powers of parturition as he should consider correctly designated by the epithet exhaustion, presenting itself WITHIN TWENTY-FOUR HOURS from the commencement of true labour-pains. He does not mean to assert that the accession of other evils, which might complicate and endanger the issues of the process, and which might require the interposition of artificial assistance, might not occur, long before that period: but he is now speaking of exhaustion, from failure of the powers, consequent upon previous and excessive exertion. After a duration, therefore, of only twenty-four hours' labour, even though the action of the uterus might seem to be more or less perfectly suspended, it would be a novelty, and indeed a perfect surprise to him, to recognise such a suspension as an EFFECT OF EXHAUSTION. On the contrary, he has known very safe and prosperous labours last for TWO AND THREE ENTIRE DAYS, without producing anything like a state of exhaustion. The time occupied by a labour is therefore never to be considered exclusively a measure of its influence in the production of an exhausted state of the parturient powers.

Again, there can be no absolute exhaustion of the powers of parturition, in the case of a previously healthy subject, unless accompanied by a dangerous prostration of the general constitutional strength: whereas such a condition cannot be presumed to exist, without its being attended by an extreme contusion of the organs more immediately concerned in the process.

OF THE IMPORTANCE OF FORMING A TRUE PROGNOSIS, WHEN INSTRUMENTS ARE INTENDED TO BE USED.—The process of parturition being usually perfectly well performed without artificial assistance, and seldom so well when art interposes, it is evident that when such necessity becomes unavoidable, it should always be made an object of the most serious professional duty, as it must ever be one of the soundest policy, to take a cautious and comprehensive survey of all the circumstances that can in any way influence or contribute towards the formation of a just prognosis.

Obstetric operations in general, and most especially those which are included under our present head of subject, are duties of the most momentous magnitude. Not only is their expediency to be founded, in almost all cases, on their inevitable necessity;



but for the honour of the art, and the professional credit of the practitioner, no less than for the safety of the patient, the reasons and grounds of that necessity should be distinctly understood and laid down. The objects of a prognosis during labour, and more especially when it may be intended to aid the natural efforts by the use of instruments, are necessarily two-fold, and embrace the probable fate and subsequent interests of at least two human beings. Obstetric operations should perhaps never be undertaken excepting as a means of diminishing or of removing some well-marked or strongly apprehended cause of danger, either to the mother or her progeny. Hence it follows, that, whenever an obstetric operation of any consequence is JUDICIOUSLY proposed, it is to be assumed that there is danger, either present or apprehended, to be obviated by it. But to this assumption of existing danger, must also be added a certain contingent risk of danger to be incurred by the operation itself: and it were, indeed, well for the credit of the art, if this latter source of danger could be estimated as of trifling importance in comparison with the former. But an obstetric prognosis of any considerable operation should never be founded upon a calculation of absolute success, as to all its objects. In a case, for instance, of simple tardiness of the process of parturition, the long duration of the labour must have the effect of exposing the child's head to a degree of pressure which might prove injurious or fatal to it solely on account of its long continuance, independently of any additional pressure which it must sustain from the use of instruments.

It may happen that a coil of the umbilical cord, by surrounding the shoulders or stretching over the curved back of the child, might be exposed to a degree of pressure for many hours, and especially after the discharge of the liquor amnii, which could scarcely fail to impede, and even ultimately to destroy, the circulation of blood within its vessels.

We are moreover sometimes witnesses of still-births, in circumstances where we find it extremely difficult, or impossible, to assign satisfactory causes for them.

In all cases indicating the use of the forceps, we operate professedly with the hope of preserving both lives: but for the reasons here stated, and many others which might be suggested, we can never be confident in our prognosis as to the safety of the child's life. We have occasionally to perform operations of

this kind AS MERE TRIALS, in cases of a known or strongly-presumed deficiency of space. There is, moreover, no certain rule for measuring the time during which the head of a child may be arrested or impacted within a confined pelvis with impunity to its life. Not only must many circumstances of the greatest importance as to their influence on the results of difficult parturition, such as the bulk, form, and the degree of ossification of the child's head, together with the natural strength and robustness of constitution of the foetal subject, remain unknown to us until after the entire completion of the process; but many others might be presumed to exist, which, by reason of their uncertain amount or contingent and indeterminate nature, would often make it extremely difficult for us to give them, whether singly or collectively, their proper value in the general calculation of a calm and cautious prognosis. Amongst those of the latter class, we may enumerate the uncertain amount of pressure applied to the child's head by the operation of the natural agents of birth, the additional compression which it must sustain from the action of the forceps upon it, the degree and duration of each successive application of the compressing force so exerted, the length of the intervals between each reiterated effort, the more or less perfect exemption from pressure of the head between such intervals, the form and bearing of the instrument relatively to the parts of the head to which it is made to apply, the amount and form of the remaining space through which the child's head may yet have to pass, and perhaps, above all, the general intelligence and dexterity of the practitioner in making use of his instruments. To calculate positively, therefore, upon a happy issue both for mother and child, can at no time be considered wise or advisable. To purchase a reasonable chance of success is an object of sufficient value to warrant the performance of an operation, and would usually furnish an argument of sufficient weight with the patient's friends to induce their compliance with a suggestion to that effect.

If the arrest should appear to have been produced by simple malposition of the child's head, without the probability of any injury having been already sustained by the structure of the parts lining the pelvis, the practitioner may be permitted, with certain cautious reserves, to hold out the prospect of a happy termination. The same opinion also, properly guarded, may be given in all other cases of difficulty occasioned by impediments easily and safely removable.

On the contrary, we sometimes meet with cases where it would be proper to guard the prognosis with more than ordinary caution, and even to lean towards the anticipation of an unfavourable issue. Suppose, for example, that of a labour of already forty or fifty hours' duration: that during a considerable proportion of that time the action of the uterus, and of the other agents associated with it in the business of labour, shall have been more than ordinarily violent; the parts lining the pelvis to be much swelled and very tender to the touch; that the patient may have complained for many hours of fixed pains of the hypogastrium, or of the lower part of the back or loins; that the throes of labour, without perhaps being less frequent, are become decidedly less powerful and less efficient; and that the pulse, after having been remarkable for excess of strength, but comparatively moderate as to frequency, has sunk into a state of considerable feebleness, great frequency, and some irregularity; and all these symptoms accompanied by a marked alteration in the expression of the countenance; in a case of this kind, without any positive evidence of the child's death, it would be the obvious duty of the medical attendant to think seriously of doing something speedily to save the life even of the mother. But the circumstances should be considered as being so serious, at least as to the possibilities of the issue, that he would not be warranted in an undertaking to operate under any DEFINITE PLEDGE OR RESPONSIBILITY for the consequences. An operation in such desperate circumstances might possibly prove the means of saving both lives. But there could be no certainty that it would ensure the preservation even of ONE. The chance of danger to the life of the child is generally in direct proportion to the degree and duration of the pressure to which its head is exposed during its transit through the pelvis.

When the child undergoes a degree of compression fatal to its life, there is always great danger that the soft parts lining the pelvis of the mother may be involved in considerable risk of injury from the same cause. If the foetal head shall have occupied the pelvis only for twenty-four hours, the maternal structures concerned will most frequently escape destruction and also generally any very material injury. This statement is intended more especially to apply to cases of severe or protracted labours, consummated ultimately without the use of instruments.

The employment of artificial power must be considered as a



most important accession to the other materials of a prognosis. It is not to be supposed that a mechanical power, consisting of two blades of steel, carried up into the pelvis so as to embrace on opposite sides the head of a full-grown child, and there so applied and wielded as unavoidably to press upon the tender structures lining that cavity, with a certain degree of force, can ever be used without exposing the textures of the parts so implicated to some danger of contusion; and we may observe that laceration of the soft parts, constituting the natural flooring of the pelvis in the living subject, is, in point of fact, a frequent consequence of such manœuvres.

Of all the instruments used in the practice of midwifery, those of the present class are unquestionably the most dangerous to the mother; inasmuch as in all cases where the forceps are used, the maternal tissues are more or less liable to the effects of contusion. All the fangs and frame-work of the instrument are made of tempered steel; and let them be ever so well covered and defended, they will still retain a great degree of hardness, calculated to bruise and to fret soft and living texture which might be interposed between their convex surfaces and the solid walls of the pelvis.

These observations are applicable to the average of forceps cases, and without reference to such as are supposed to be involved in extraordinary danger. We are often indeed not competent to say, that a case may not be already involved in danger, although danger from impaction or arrest of long duration of the foetal head within the pelvis may not have even been thought of. We may even form conjectures, and express doubts, upon some very material points; but the author knows of no circumstances of a sufficiently decisive nature, which could authorise us, in all cases of long retention of the foetal head within the pelvis, to pronounce absolutely on their ultimate issues, whether we have recourse to the use of the forceps or not. Tenderness and swelling of the parts about the vulva, much tenderness of the tissues within the pelvis, and especially of those about its superior aperture, foetor and bad colour of the discharges, and these drainings being mixed with meconium, great soreness of the abdomen, a manifest diminution or sinking of the powers concerned in the propulsion of the child, and especially of the constitutional strength of the patient, together with a diminution of power and increase of frequency of the pulse: all these are

unpleasant symptoms, and indicate considerable danger both to mother and child : but they are not singly, nor even collectively, sufficient to establish the fact of a state of injury of the maternal parts, which may not admit of their being yet rescued from destruction. They, indeed, indicate most urgently and unequivocally the expediency of mechanical interference without loss of time ; but they also indicate, with equal urgency, the very doubtful and guarded nature of the prognosis which should be laid down upon undertaking the responsibility of delivering with the forceps under such circumstances. The probability, upon the whole, might be a still-birth as to the fate of the child ; and much constitutional as well as local disturbance, with purulent discharges and sloughings from the vagina, for several or for many days afterwards, in respect to that of the mother.

It is obvious that the mother cannot be made liable to these accidents without also being exposed to imminent danger or even to loss of life. Much of the issue of such a case will doubtless depend upon the patient's general strength and previous state of constitution. At all events, it will be the interest, the true policy, as well as the professional and moral duty of the practitioner, whose particular office it will be to operate, to state strongly his apprehensions, and especially to guard against the too confident expectation of a doubly happy issue. The prognosis ought to state, at some length, the principal sources and bearings of the danger, and how far one or both lives might be implicated in peril. The several known results of such unfortunate struggles should be clearly stated, at least as matters of possibility.

The structures of the parts most liable to pressure being considered as having already incurred more or less of the evil of contusion ; it might be often prudent to repress the too fond confidence of the patient, and her friends, that she might finally escape from its consequences, until a sufficient length of time should elapse to warrant a full assurance of impunity. The usual dates of sloughings of vaginal tissues in consequence of severe labours, are between the sixth and the ninth days after delivery. In one instance within the author's knowledge, the slough did not separate till the thirteenth day after the consummation of the birth. Involuntary micturition presenting itself in the course of a few hours, or on the day immediately subsequent to a difficult labour, is generally a matter of much less consequence than when that symptom supervenes about the time just stated. In the one case

it only indicates temporary weakness, or paralysis of the muscles concerned; with, perhaps, a degree of tenderness and intumescence of the neck of the bladder and the upper part of the urethra, which will gradually subside; whereas in the other, it is the effect of an irreparable solution of continuity, an incurable breach into the interior of the parts affected from loss of substance.

As this cause of misery to the patient might, however, be the effect either of an inferior degree of pressure, applied for a long time by the child's head, or of a more violent pressure applied during a shorter period by the forceps, it should always be a matter of serious consideration to the operator, to be perfectly distinct as to the proper elements or materials of his prognosis. It has been observed that an early occurrence of the symptom is usually the effect of a temporary weakness of the organs: but it should be added, that it might also present itself as an immediate effect of puncture or laceration from the undexterous and violent use of instruments. It is not often that the bladder should be mechanically exposed even to contact, much less to injurious pressure, from the forceps; which, indeed, can only happen when a blade of that instrument is passed up immediately behind the symphysis pubis.

The above observations are intended most especially to apply to cases where the danger of destruction of parts is more immediately anticipated than that of loss of life. There are, however, instances where the latter danger exists to so great a degree, as almost entirely to forbid the hope of deriving any substantial advantage either from the use of the forceps, or that of any other instrument; and yet where it might be considered a proper measure to effect the delivery by artificial means. We are here necessarily supposing an assemblage of the worst possible symptoms; that these symptoms have supervened in the sequel of parturient struggles of great violence and of long duration; that the parts within the cavity, or at the brim of the pelvis, are presumed to be in a state of extreme contusion, inflammation, or even actual mortification; that the patient is incapable of bearing the slightest touch upon the hypogastrium without being distressed by it, or else that she may seem to bear considerable pressure upon the abdomen from diminished sensibility to pain, in consequence of the accession of gangrene; that the labour-pains are become exceedingly languid, or altogether suspended,



in the midst of an apparently great collapse of the general powers; that the pulse has become small, feeble, frequent, and irregular; that the countenance, in addition to the most pitiable anxiety, has acquired the usual characters of what has been denominated the *FACIES HIPPOCRATICA*; that the genitals are distended with venous blood, and lubricated by a discharge of putrid fluids from the uterus; and, finally, that no motions of the child may have been felt for many hours, or perhaps for days.

The lives interested in the issue of a case like this, must obviously be implicated in the greatest conceivable danger. It is only merely possible, and perhaps scarcely so much, that either the mother or child could be saved. Nevertheless, to avoid the odium which is generally attached to the professional management of cases suffered to terminate fatally without the institution of any attempts to save either mother or child; it might be right, in such desperate circumstances, to take the benefit even of the very last resources of our art. Of the two lives implicated in the event of such a case as has been just described, that of the child is perhaps upon the whole to be considered as the more valuable; or, to speak more correctly, the least positively destitute of contingent value. If such, upon a deliberate estimate of all the circumstances of the case, might appear to be the actual fact, it would be proper, for that special reason, to prefer the use of the forceps to all other modes of delivery. In consideration, however, of the bruised and extremely tender state of the soft parts lining the pelvis, it is manifest that the attempt to effect that object should be made with the greatest caution; and that the whole conduct of the operation should be such as not materially to add to the chances of a fatal event to the mother. Before we engage, however, in an operation of any kind, in circumstances so truly formidable, it is obvious that we should guard the event by the only prognosis which it would be professionally or morally correct to propound.

Before we conclude our observations on this very important and practical part of our subject, it may not be improper to offer a few remarks in application of its principles to the phenomena of some of the most dangerous varieties of complex labours.

Of all the complications by which the process of parturition may be endangered, those from ruptures of the bladder and the uterus are, perhaps, the most perilous or certainly fatal in their conse-

quences. Rupture of any superior and abdominal part of the bladder would probably end mortally in the course of a few hours, and certainly so in the course of a very few days. A cysticovaginal rupture of the same organ, which it sometimes incurs in common with the uterus, must also be considered as an extremely dangerous incident. There might, however, be a remote chance of recovery in such a case, if we suppose the laceration not to extend into the peritoneal cavity.

In cases of rupture of the uterus generally, whether exclusively or in common with any of its contiguous structures, our prognosis should never assume any more than the mere possibility of saving even one life.

In labours complicated with puerperal convulsions requiring the use of instruments, our prognosis, which indeed should be very cautious, might be allowed rather to incline towards a favourable issue as regarding exclusively the fate of the mother. And yet, when such cases come to be long protracted, and to be attended by symptoms requiring the use of instruments, they should by no means be considered as devoid of danger. The use of embryotomy instruments ought not to increase their danger. That of the forceps would be attended with more risk. The symptoms attendant upon such cases are indeed so formidable in their general aspect, that the friends of the patient are prepared to receive the most unfavourable prognosis frequently some hours before the melancholy scene is closed.

In cases of labour complicated with uterine hæmorrhage requiring the use of instruments, our prognosis must have for its materials the following important circumstances, viz. The quantity of blood lost before and during the labour; the time occupied by the discharge; the length of the intervals interposed between the several relapses by which it may have been characterised; the amount of the shock sustained from it by the constitutional powers of the subject; the state of the parts, within and at the outlet of the pelvis, as to relaxation or rigidity; and finally, the actual competency of the practitioner to use the forceps or other instruments properly adapted to the case, without increasing the previously-existing danger of his patient.

OF THE BEST POSITION FOR THE SUBJECTS OF OPERATIVE MIDWIFERY.—On entering upon the consideration of the more practical part of our subject, it seems proper that we should pre-

mise a few remarks on the position of the patient best adapted for the convenient and safe use of the forceps. Foreign writers have universally recommended a nearly horizontal position on the back, with the lower extremities brought over the foot of the operating bed or table, and raised up and supported on either side by assistants. This position, it cannot be denied, makes the outlet of the pelvis perfectly accessible to the movements of the operator. It also deprives the patient in a great measure of the power either of resistance or of recession. It is, moreover, no great departure from the position usually adopted for natural labours in most parts of the Continent; and it may indeed be added, that it affords ample room for wielding the tremendous forceps commonly used abroad. Notwithstanding these concessions, it is nevertheless the author's opinion, that the position generally used in England, that of lying on the left side, and as nearly as may be to the edge of the bed, is much better adapted for short forceps operations than any other.

When a female is about to be made the subject of a common forceps operation, she is to be placed on her left side, and her breech brought as near as may be convenient to the edge of the bed. Her trunk should lie in an oblique or an almost directly transverse position across the bed; with her lower extremities drawn up towards her body, so as to form a considerable angle with the trunk. In this position of the subject, the outlet of the pelvis becomes sufficiently accessible to the manœuvres of the practitioner. The principal difficulty imputable to the adoption of the position here recommended, is the greater opportunity which it gives to the patient of keeping her lower extremities closely together, and of otherwise disposing of them in such a manner as to interfere with the free movements of the handles of the instrument. This inconvenience may, however, be effectually obviated by employing an assistant, or a female attendant, to raise the right knee to the distance of about twelve or fifteen inches from the other; and then to carry the same extremity upwards, as far as may be practicable, towards the abdomen. But this assistance will not frequently be required; and indeed it will be scarcely ever necessary until after the introduction of the first blade of the forceps into the pelvis.

OF THE DUTY OF AN ACCURATE EXAMINATION PER VAGINAM ON THE INTENDED USE OF INSTRUMENTS.—The institution of an accu-



rate examination per vaginam is at all times an indispensable duty during labour: and when the expediency of having recourse to the use of instruments as a means of expediting or effecting the delivery is contemplated, it becomes doubly important. In all such cases the operator, however assisted or supported by the opinion of others, must ascertain the precise facts of the labour for himself. Upon him will devolve eventually the principal part of the responsibility; and for that reason it is evident that he should take nothing upon trust. It should by him therefore especially be considered of the last importance, to examine attentively all the facts and bearings of his case, before he commences the operation: and should his anticipation of a favourable issue be less sanguine than that of his colleagues in consultation, he should take pains to state distinctly the grounds of his apprehensions. The general objects of examination per vaginam, with a reference to the intended use of instruments to assist parturition, may be briefly enumerated as follows:—viz. To ascertain the size and form of the pelvis, the dimensions of its several diameters at the brim, at the outlet, and throughout the whole of its course: to ascertain the state of the orifice of the uterus, that of the vagina and its orifice, together with that of the perineum, as to relaxation, rigidity, firmness, swelling, tenderness, defective sensibility of the parts from the long duration of pressure upon them, or as to injuries from the previous and improper use either of hands or of instruments; also to ascertain the presence and character of tumours or of other obstacles to parturition; and finally, to ascertain the presentation, position, preternatural development of the presenting part, etc. of the child, relatively to the form and dimensions of the passage through which it has to be transmitted. Some of the above points it is useful to know with a more immediate reference to the formation of a just prognosis: whilst of some of the others, and especially of the first and last stated objects of the examination, the most perfect attainable knowledge is an essential qualification for the proper use of obstetric instruments.

OF THE APPLICATION OF THE FORCEPS IN DIFFERENT POSITIONS OF THE CHILD'S HEAD WITHIN THE CAVITY OF THE PELVIS.—To make what we have to advance on this subject as easy and useful as possible, we must recall the reader's attention to what has been offered in page 630, on the several varieties of position of the

fœtal head within the pelvis, considered in reference to the intended use of the forceps.

1st. The use of the instrument of which we are more immediately about to treat, viz., the short or common forceps of this country, always supposes, that the head of the child shall have previously entered and reached a considerable depth within the cavity of the pelvis. This rule is considered as being perfectly well understood and established in the practice of this country; and our instrument is accordingly adapted to this more limited object only, and never used for the purpose of bringing the child's head from above the brim into the cavity of the pelvis.

2nd. The blades of the forceps, with certain exceptions and modifications to be noticed hereafter, are to be introduced, so as ultimately to be applied over the sides of the head and face of the child. Thus applied, the instrument fits more accurately to the head. Its counterparts embrace a greater number of points. Judiciously constructed, they admit of a large portion of the sides of the head and face to engage within their fenestræ; they compress the head more equably, and therefore in a manner less calculated to do it injury. They occupy the least possible space within the pelvis; lock easily and perfectly, and are not liable to slip. To ensure all these advantages, it is to be taken for granted that the instrument must be both PROPERLY CONSTRUCTED AND PROPERLY USED.

3rd. The use of the forceps can never be indicated before the orifice of the uterus shall have been very amply dilated. A sufficient dilatation is here meant not only to admit of the convenient application of the instrument, without doing violence; but also of the easy and safe extraction of the child's head through it. We may not think it necessary in all cases to wait for what is called obliteration of that aperture; but there are but few cases, and those of great urgency, from alarming hæmorrhage, profound faintings, or other imminently dangerous symptoms, which we should be willing to admit into our list of exceptions: and even these exceptions are to be allowed without prejudice to the rule which requires a sufficient development of the os uteri to admit the child's head to pass through it without incurring the risk of laceration.

4th. The left-hand counterpart of the forceps, of which the blade is to correspond to the left side of the pelvis, should generally be the first to be introduced. This rule supposes the

instrument, like Levret's forceps, to have a curve in the direction of the edges of its blades, to correspond with the curved axis of the pelvis. The left-hand blade, as its name implies, is to be introduced by the left-hand. The reason of the first part of the rule is to be sought in the position which is usually given in this country to the subject of the operation.

5th. The locking of the forceps is never to be effected by violence. If the two blades shall have been introduced in such a direction as to admit of being made perfectly parallel, the adjustment at the lock will be easily effected; whilst, on the contrary, the attempt to lock them in the absence of that parallelism will be attended with great difficulty, and also probably with injury to the soft parts lining the pelvis. For this reason, therefore, the practitioner must never think of using extracting force without having perfectly effected the adjustment at the lock; as in that case he could scarcely fail to incur a still greater risk of doing mischief. Peculiarities of forms, both as to pelves and instruments, as also peculiar forms and positions of foetal heads, will severally occasion difficulties in the locking of the forceps: but these difficulties, as well as the modes of overcoming them, we shall have opportunities of treating of more at length hereafter.

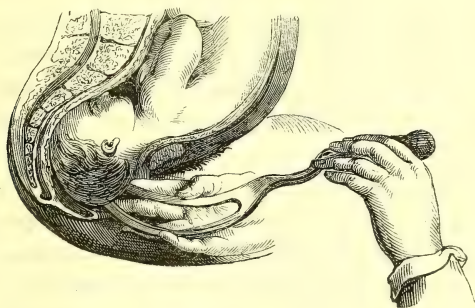
6th. All operations with the forceps require to be performed VERY SLOWLY. Art should be made as much as possible to imitate nature. Nothing can be more mischievous than the pretensions and representations of certain authors, in which are held up for the admiration of inexperienced readers the facility and cleverness of rapid movements in the proceedings of obstetric mechanics. The more passive organs of parturition are usually developed by nature herself exceedingly slowly and gradually. If art should presume to dilate them rapidly and by main force, she would not fail to involve her own pretensions in discredit, and to do irreparable mischief to the victims of her rash exploits. Slowness of development of the parts concerned being an essential property of the function of parturition, why should we take upon us even to attempt to perform in a few minutes that which nature herself, even when deemed competent to do the work well, would take so many hours to accomplish? The young practitioner may, on the contrary, be fully assured that he can gain no substantial credit by any attempts, however plausible, to deliver his patients expeditiously; and he should be well



aware that in so doing he would depart from the practice of the most judicious and most experienced masters of his art.

7th. The requisite amount of force to be used in obstetric operations should be applied by degrees, very cautiously and slowly, according to the demand for it: but the whole of the extracting force, in order to be safely and therefore successfully exerted, must be confined within very moderate limits.

OF THE MODE OF USING THE FORCEPS WHEN THE HEAD PRESENTS IN THE FIRST POSITION.—Our first forceps position, the reader may recollect, is when the occipito-vertical part of the head is directed towards the anterior part of the pelvis. In this position, it is seldom necessary to operate until the head shall have entered pretty deeply into the cavity of the pelvis. In the situation of the head here supposed, the left ear will be found to correspond to the left side of the pelvis, and the occipito-vertical region, usually, in the language of midwifery, called the vertex, about to enter into, or perhaps actually engaged within, the arch of the pubes. After having duly adjusted the position of his patient, and having seen furnished and examined whatever he is likely to want during the operation, the operator takes up the left-hand blade of the forceps in the manner represented in plate xxxiii. of Atlas, and in the accompanying wood-cut. He then insinuates two or three



fingers of his right hand into the vagina, and into contact with a portion of the presenting head, a little below and to the left side of the centre of its presentation, as conductors to the instrument.

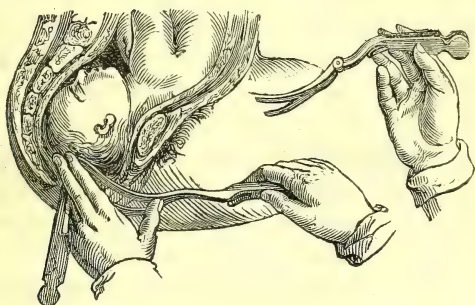
It has sometimes been recommended by authors to pass the conducting hand a great way up into the pelvis, under the pretence of making room for the easier introduction of the instru-

ment. But from the inconvenience generally of this method, from the actual obstruction given by the fingers to the easy introduction of the instrument, and from the liability of the fingers to be pinched by the convex surfaces of the clams of the forceps, we may much suspect that not only the rule itself is essentially incorrect in principle; but also that, in point of fact, it has seldom been observed in practice. The only proper use of the conducting fingers is to direct accurately the point of the instrument, so as to ensure its transmission to the side or other intended part of the child's head, without pinching, distending, or otherwise unnecessarily irritating the soft parts situated at the outlet of the pelvis. From this part of the head the instrument is then to be passed gently along its left lateral surfaces, in a line somewhat lower in the pelvis than the known situation of the ear, until it is felt to have effected its transit over the temple and forehead. It should then be gradually, and with great gentleness, raised up, and applied over the child's ear, so as to embrace easily, and at many points of its concavity, the corresponding convexity of the foetal head. The entire blade is then to be moved upwards along the side of the pelvis, so as to be made to embrace accurately within its fenestra, the left occipital protuberance, together with the greater part of the ear and side of the face, even to the chin.

To execute these movements accurately, it will be necessary to pay strict attention to the situation of the ear relatively to the pelvis, before they are commenced. To be confident after the introduction of the instrument of its having been correctly applied, the index finger of the right-hand should be passed up along its fenestra; and if it encounter in its progress either the whole or a considerable portion of the ear, the operator may be well assured, that the left-hand branch of his forceps is very properly applied. The introduction of the first counterpart of the instrument is, indeed, very seldom attended with difficulty, and it should be attended with scarcely any inconvenience or pain to the patient. The operator will, of course, avoid unnecessary pressure upon parts over which the instrument should glide gently and easily. We are generally directed to be very cautious not to force the point of the instrument into the angle formed by the vagina and the unobliterated orifice of the uterus on the one hand, and to avoid pinching the lip of the uterine orifice between the points of the

blades of the forceps and the side of the child's head on the other. With an instrument of a proper construction, and a very moderate share of dexterity in the use of it, it is scarcely possible to incur the risk of either of these accidents.

The other counterpart of the forceps is usually called the right-hand blade; because it is generally passed up by the right-hand, as represented in pl. xxxiv. of the Atlas, and in the subjoined wood-cut; the left-hand being then used as the conductor. The



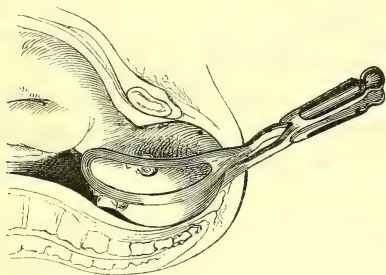
common rule for the introduction of this blade prescribes, that it should be passed up as nearly as possible in the same direction relatively to the right side of the head as the other branch had been to the left. The application of this rule, in English practice, would be found not only extremely difficult if attempted; but in the author's apprehension, scarcely practicable, without bringing the part to be operated upon two or three inches over the side of the bed. We are, of course, supposing the patient to be lying on her left side, agreeably to the prevailing custom of this country. Without insisting upon the inconvenience of bringing the nates of the subject so far over the edge of the bed as an insuperable obstacle to this procedure, it should nevertheless be considered as a sufficient objection, to warrant a departure from the prescribed rule, if it be practicable to dispense with it without prejudice to the interests of the patient. That may, indeed, be accomplished with a considerable degree of certainty in two ways: first, by using for the second counterpart of the instrument a blade with a very short handle, or with a detached handle, admitting of being fastened to the blade after its introduction; and secondly, by making a little change in the position of the second blade during its introduction. The first method was suggested and by some persons adopted many



years ago ; but it appears upon the whole to be an inconvenient one. To obviate the same difficulty, it has also been proposed to make the second branch of the instrument flexible at or near its middle, so as to make it introducible over the right side of the child's head, and yet capable of avoiding the inconvenience of the bed. The Edinburgh forceps are constructed on this principle. The joint in the right-hand branch of our common forceps, represented in pl. xxxii. of Atlas, fig. 2, 3, is intended to favour the same object.

But the introduction of the second branch may easily be so managed, as to secure the most accurate parallelism between the counterparts of the forceps when introduced, without shortening that branch, as in the case of a blade separable from the handle, and also without introducing a joint at its shank, as in the specimens of the instrument just referred to. The left-hand blade being introduced in the common way, and properly applied to the head, let its handle be moved backwards towards the inferior fourchette, to make way for the introduction of the practitioner's two first fingers of the left hand, which are now to be the conductors of the second or right-hand blade. These two fingers are to be passed into the vagina obliquely over the shank, and anteriorly to the handle of the branch of the instrument already introduced ; so as to reach and be applied to the superior and posterior part of the child's head, an inch or two beyond the small fontanelle, in the direction of the sagittal suture. The second branch of the forceps is then to be taken up with the right hand, applied to and gently carried up along the palm of the left or conducting hand into the vulva ; so that its interior surface, at and near the point, shall reach and be applied to the foetal head, intermediately between the small fontanelle and the points of the two fingers of the operator's left hand. This action is well represented in pl. xxxiv. fig. 1, of Atlas, and also in the wood-cut, as already referred to. The right-hand blade may also be taken up and introduced, sometimes even more conveniently, in the manner represented in figure 2 of the same plate. Much force is happily not required in accomplishing this part of the operation ; and it is hoped that the simple testimony of its attainable facility, as attempted to be represented in the drawings of each of the figures, will be received as a pretty convincing illustration of that fact. The point of the instrument having been introduced carefully, and without prejudice to the

soft parts attached to the outlet of the pelvis, into the posterior part of the vagina; it must next be carried forward by an adroit circuitous movement over the right parietal, coronal, and temporal regions of the head to its ultimate destination, and of course into easy and perfect parallelism with its antagonist blade. This movement is attempted to be shown by the representations of different portions of the second blade, in successive stages of its progress, as indicated by the dotted lines in pl. xxxv. of the Atlas, fig. 2. The wood-cut represents the forceps properly applied to the foetal head.



The route taken during this movement of the instrument relatively to the pelvis should correspond with a curved line drawn from the anterior and right lateral part of the perineum, obliquely across the posterior portions of the right sacro-ischiatic ligaments, and then gradually upwards to the right extremity of the transverse diameter of the brim of the pelvis; which of course will eventually bring it into strict parallelism, and more or less easy adjustment with its antagonist.

In cases of confined or misshapen pelvis, as also of peculiar forms of the foetal head or positions of it relatively to the dimensions of the pelvis, it is sometimes found very difficult, and occasionally impossible, to bring the opposite instruments into sufficient parallelism to admit of their being safely locked. This difficulty, it is obvious, will more frequently occur when broad-bladed, than when narrow-bladed forceps are attempted to be used. At the same time, it is to be observed that such a difficulty, whenever experienced by a competent operator, should be considered as an indication of a reduced chance of the ultimate success of the operation as a means of preservation of the child. The child's life, however, must not be hastily yielded up, nor until nature and art shall have exerted their utmost and united

resources; until the most powerful efforts of the one, and the best-devised expedients of the other, shall have been fairly and deliberately exerted without effect.

Among the artificial expedients presumed proper to be made trial of in cases of this description, is the exchange of one or both blades of the forceps first used, for others of different forms and dimensions. It sometimes happens, that a pelvis is much less ample as to its capacity on one side of its cavity than on the other. This peculiarity should furnish a motive for the trial of a narrow-bladed branch to act on that side, as an antagonist to a branch of the broad-bladed forceps on the other. In giving an order for the construction of a set of forceps, it should form a part of the instructions that all their several counterparts should be made to act together in pairs. In pl. xxx. B. fig. 1, may be seen a specimen of a branch of a pair of forceps with a narrow blade, accurately adjusted at the lock with another having a wide fenestra.

Another mode of obtaining a safe purchase of the child's head in cases not admitting of the convenient introduction of the second branch of a pair of forceps of the common construction, might be obtained by adapting a very short blade to meet the intention, less perfectly indeed, of antagonizing the first introduced counterpart, but still sufficiently to act as a safe fulcrum to its purchase. This is an expedient so very simple in its principle, and yet so perfectly effectual in many cases not admitting of the use of the common forceps, that the author has often been much surprised that it has not been thought of long ago. This little appendage to the common obstetric forceps is represented in plate xxxix. of Atlas. The smaller and shorter blade is used partially as an antagonist, but principally as a fulcrum to the action of the large blade; and from having experienced its convenience on several different occasions, the author feels anxious to recommend it to the particular attention of his readers.

Having at length introduced and duly adjusted at the lock both branches of his forceps, the practitioner has then to encourage his patient, and to intimate his readiness and ability to give her some useful assistance upon the return of her pains. Before he begins however to draw down, he should again inquire into every incident of the case; viz. whether both counterparts of his instrument may have been passed up without occasioning any serious inconvenience. Is there an appearance of blood to be



detected AFTER the passing up of the instrument, of which there was not any before the commencement of the operation? Does the patient make any strongly-expressed complaints of the manœuvres of the practitioner; such as of her being cut, torn, or otherwise violently treated? Do both branches of the forceps feel to be firmly and well applied to the head? Is the child's head perceptibly moveable within the pelvis, etc. etc.? As it is of great importance to act rather in aid of nature than in opposition to her efforts or in their absence, we cannot be too observant of the well-known rule of drawing down with the instrument only, or at least principally, during the parturient contractions of the uterus. After properly adjusting the instrument at the lock, without however bringing the handles forcibly together, we accordingly wait for a pain. Upon observing some preparation or indication of its approach, we complete the adjustment at the lock; and upon the accession of the propellent effort, we draw down gently but firmly with both hands applied to the instrument; the right hand embracing the handles; and the left giving it easy support and assistance by directing the movements of the shanks and blades. This action is well represented in pl. xxxvi. of Atlas. The purchase thus represented does not, and is not intended, to give an idea of the greatest possible amount of attracting power: it is however, quite sufficient for its object, compatibly with the safety and future well-being of the mother. The dimensions of the forceps, as well as their strength at the clams, should be such as to admit of the application to the child's head of a certain amount of compressing force. By the exertion of such force, it is evident that the bulk of the foetal head must be diminished in some of its diameters. If, therefore, in the conduct of an operation with the forceps, no adequate advantage is gained by moderate traction, then, rather than greatly add to the attracting force, it would often be more judicious to compress the foetal head a little more firmly. Pulling down violently with instruments made of steel, which must necessarily impinge dreadfully upon the parts lining the pelvis, must involve the results of such operations in great jeopardy and peril.

If by a moderate degree of compression of the child's head, as represented to be applied by the right hand in pl. xxxvi. just referred to, aided by a still more moderate amount of traction, made during a natural expellent action of

the uterus, no perceptible advantage is gained; the practitioner should become very diffident as to the extent of his hopes, and observe the greatest caution as to any further exertion of this form of artificial power. Should these attempts be several times repeated, and still manifestly without the least degree of progress; he should deliberate most seriously, first as to the expediency of perseverance in his original intention, and then as to the choice, if any, of ulterior measures. He should coolly reflect on what already may have been prematurely attempted. It may possibly occur to him, that it might have been better if he had waited longer; and that even now he might withdraw his instrument, not only without detriment, but with much probable advantage to his suffering patient.

The withdrawing of the instrument for a time, and its re-introduction again at a more convenient season, is a matter of the utmost facility and safety to a practitioner who is sufficiently dexterous in this part of his duty. He knows how to insinuate and to humour his instrument so well, that he is able to change its relative positions at pleasure, and even to introduce or to withdraw it, almost without the cognizance of the patient. Before the forceps are withdrawn on these occasions, it may be often prudent to attempt to change the position of the head within the pelvis in some small degree; and then, once or twice more, to draw it gently down with a moderately firm purchase. These measures still not succeeding; and it being supposed that the forceps may not have been prematurely applied, and the symptoms attendant on the case to be such as to indicate speedy delivery by any means compatible with the safety of the mother; it will then become the practitioner's duty to withdraw the forceps altogether, and to have recourse to the use of embryotomy instruments. Before however he could come to this decision, he should be perfectly satisfied that his want of success might not be, in a great measure, imputable to rigidity of the vagina and other soft parts.

When, on the other hand, the practitioner is sensible of a certain degree of power being exerted by the instrument over the child's head during each traction; then indeed he may hope that a little time and perseverance, with much gentleness, may enable him to gain the whole of his object. It is scarcely necessary to observe, that the traction at every stage of the operation must be made in a line with the

axis of the pelvis. In proportion, therefore, as the head advances towards and through the inferior aperture of the passage, it becomes necessary that the handles of the forceps should be raised more and more towards the abdomen of the patient. The artificial movements must be made in strict conformity to the mechanism of natural labour. As to the particular kind of action proper to be used during the adduction, authors have generally recommended the drawing down to be made in a line, alternately changing its direction from side to side of the axis of the passage. The only danger of this rule is, its liability to be understood in a different sense from what it is really intended to convey; it being often supposed to admit of a much greater extent of lateral movement than it would be prudent or safe to use. The forceps, it should be remembered, are properly and primarily a direct adductor; and any divergence given to the handles from the curved line of the axis of the passage, whether it be made alternately from side to side, or in all directions, by a sort of circular movement, in addition to and during the adduction, must be resorted to with extreme caution. In the alternate movement from side to side, the lateral parts of the pelvis are made, by turns, points of abutment or fulera to the corresponding portions of the blades of the forceps; and this, it is obvious, must occasion a certain degree of pressure upon the parts in question, superadded to the general pressure to which they would otherwise be exposed. The circular movement here alluded to, provided it be moderate, and not combined with a violent degree of adduction, appears upon the whole less calculated to produce a destructive contusion of the soft parts, and, at the same time, more promotive of its immediate object, that of effecting a gentle extension of the soft parts, than the alternate movements of the handles from side to side.

It is a principle recommended by almost all English writers, as well as by many foreigners, that the forceps being once applied, should not be again removed until the head of the child shall have been entirely withdrawn. See Denman's Introduction to the Practice of Midwifery, sect. 17. The reason usually offered in favour of this rule, is the mere possibility that the pains might cease after the removal of the instrument, and that it might become necessary to introduce it a second time. As a rule of general practice, the author feels it his bounden duty to express his total dissent from its principle. Nothing can be more absurd



and unnecessary, not to say mischievous, than its universal adoption. In nine out of ten forceps cases, a very moderate assistance, either slightly to change the position of the head, or to advance its progress beyond the seat of its temporary lodgement, or simply beyond the operation of the impediment which may have occasioned its arrest, is generally all that is required. So far from approving of the principle of the rule in question, he not only in his own practice rejects it, but almost always reverses it. Experience has long and abundantly convinced him, that it is very seldom necessary to allow the forceps to remain any considerable length of time within the pelvis, even in those cases where the use of such a power might be perfectly well indicated. In cases, for instance, of simple arrests before the head has got down sufficiently low to produce an impression upon the perineum, and in the absence of complications requiring speedy delivery, we should expose our patient to much unnecessary risk of contusion, by keeping the instrument in constant application until the foetal head might clear the vulva. He has had occasion already to object to certain published representations of easy and rapid artificial deliveries. The principle of the rule here adverted to is almost equally objectionable in practice. It is next to impossible to use an artificial power with so much admirable moderation and patience as nature herself exhibits in her usual very slow development of the maternal organs. But if it be assumed that the instrument is not to be effectively used whilst allowed to remain within the pelvis beyond the actual demand for the exertion of its proper power, and not at all after the extension of a certain amount of assistance, excepting on the failure of the natural efforts; then it is maintained that it should be entirely withdrawn until such failure shall have declared itself.

The arrested head having once got clear of a principal impediment, the remainder of the labour is usually accomplished without further difficulty, and almost certainly without further necessity for the use of instruments. Tedious labours might occasionally be very essentially benefited by a moderate degree of assistance, or a certain amount of artificial power exerted only for a short time; whereas their issue might be rendered very doubtful by an obstinate perseverance in the use of the forceps, until the foetal head was actually in the world. A greater degree of pressure may be sustained with impunity, or

at least without much danger of permanent injury, when applied only for a short time, than a much less degree, when applied continuously and for an indefinitely protracted period. It is probable that limited degrees of malposition of the head in the pelvis should be considered as among the most frequent causes of protracted labours, such as are ultimately attended with the death of the child, but seldom succeeded by any bad consequences to the mother. A competent master of the art might often have it in his power to save the lives of children thus circumstanced, by the slightest possible application of a well-adapted mechanical power. The required movement being once effected, nature would then prove quite equal to her proper work, and the demand for artificial aid would instantly cease.

The final exit of the child's head should never be hurried; nor even allowed, under circumstances of instrumental interference, to take place with great rapidity. The necessary development of the inferior part of the vagina, including the perineum and os externum, is almost always, and especially in first labours, the work of a long time. When nature departs from her own proper law of effecting this part of the function very slowly, and by degrees scarcely perceptible, the structures more immediately concerned in the latter efforts of the struggle are liable to be torn, and are, it is well known, sometimes actually lacerated. It is not, therefore, to be expected that these important organs should escape contusions and lacerations, when exposed to the distention and pressure incident to the use of obstetric instruments made of steel, and often not very dexterously used.

OF THE USE OF THE FORCEPS WHEN THE CHILD'S HEAD IS IN THE SECOND POSITION.—In the second position of the foetal head within the pelvis, the occipito-vertical part of it is directed towards the hollow of the sacrum. The method of introducing the forceps in this position of the child's head does not differ materially from that observed in the first. It is here also most convenient to introduce the left-hand blade first. The fingers of the right hand are to be introduced along the left labium pudendi into the vagina, and into contact with the right parietal parts of the child's head, to serve as conductors to the left-hand blade of the forceps. The precise position of the head having been ascertained by examination, the left-hand blade of the forceps is to be taken up by the left hand, as described in the first position operation, and agreeably to the representation given in the wood-

cut and Atlas, and carried along the palm and fingers of the right hand into contact with the head of the child. This instrument must be introduced relatively to the pelvis, somewhat more anteriorly, that is, so as to have its concave edge about an inch more towards the front of the pelvis, than in the first position.

The object of this slight difference of proceeding in the second case is to avoid encountering the ear, which, without the caution here indicated, would be found directly in the route of the instrument. Having been thus cautiously carried over the right parietal and temporal regions of the child's head, the left-hand blade of the forceps, it will then, by a slight movement backwards, slip easily into its best possible situation over the right ear. The right-hand blade, or that which corresponds when introduced with the right side of the pelvis, is then to be taken up by the right hand, and carried up, along the palm and fingers of the left hand, into contact with the posterior and superior part of the child's head; the large fontanelle, in this position, being generally pretty directly the presenting part. The instrument must be so conducted and applied, that its flat internal surface, near the point, shall feel to be in accurate and easy apposition to the convex surface of the posterior and superior parietal region of the head. To effect this object, the first direction and movement of the second or right-hand blade should be very nearly parallel with the horizon; its point being introduced over the fourchette towards the posterior parietes of the vagina, and its handle extended between the thighs of the patient, nearly at right angles with her trunk. From this position of the second blade, pl. xxxiv. of Atlas, see also wood-cut, its direction is to be gradually changed as attempted to be represented in pl. xxxv. fig. 2, by a dexterous and very gentle movement upwards, until it shall come into strict parallelism with its antagonist blade, when it should include the left parietal protuberance, the ear, and side of the face, within its fenestra, and admit of easy adjustment at the lock. In this position of the head, it will be generally convenient to bring the point of the blade to the side of the pelvis somewhat sooner, and to incline it more towards the front, than when the head is in the first position. The object of this precaution is, to enable the practitioner to avoid the left ear. When both branches of the forceps shall have thus been duly applied and adjusted, the remaining part of the delivery is to be



conducted much in the same manner, and with the same observance of the mechanism of natural birth, as was recommended in the treatment of the case under the circumstances of the first position. We accordingly draw down, correspondently with the axis of the pelvis, with great caution and tenderness; so as to give, especially at first, but a moderate degree of assistance to the natural efforts. When a natural effort is exhausted, we also desist; or in the absence of pains, we observe certain intervals between our successive attempts to draw down the head. After six or eight well-directed and very cautious tractions shall have been made, with every proper attention to the peculiar circumstances of the case, the practitioner might reasonably expect to have gained some positive advantage. If, on the other hand, no progress whatever is perceived to have been made; that fact being perfectly well ascertained; it will then become his duty, at least for a time, to desist from further efforts, and to withdraw the forceps from the pelvis.

The experienced reader is fully aware, that the case which we are at present treating, is attended with much more difficulty, and also with much more uncertainty as to its effects on the life of the child, than that of a head presentation in the first position. The form of the head when in the second position, and the cavity of the pelvis, are in opposite and adverse relations to each other. If, in addition to these inconveniences, the foetal head should exceed the standard size, or the pelvis be in ever so small a degree defective in some of its most essential dimensions; an amount of difficulty would very probably result which might not admit of being obviated by a safe use of the forceps. Should our efforts so far succeed as to prove the means of bringing down the head sufficiently low to bear strongly on the perineum, it would then remain for consideration whether the instrument should not be withdrawn; or whether it might be necessary, or even proper, to continue to give further assistance. If we suppose the uterine efforts to be powerful; and the general state of the patient such as to admit of a few hours' further delay; the better practice would be to surrender the remaining part of the labour to the disposal of nature herself. In that event, the os externum and perineum would be developed much more gradually, and therefore probably much more safely to their respective structures.

Artificial mechanism, however dexterously and cautiously applied, can seldom be so gentle, and devoid of violence, as the

natural operations of the organs themselves. It is well known that the head, when presenting in this position, requires to be propelled or conducted very nearly in a line parallel with its antero-posterior diameter; and as, consequently, it generally happens, that the vertex is the part to engage first in the os externum, it is obvious that the perineum must suffer immense distention before a sufficient passage can be prepared for the delivery of so considerable a bulk. Add to this the possibility of a narrow arch of the pubes, and the danger of the perineum would be not a little enhanced. The chance of escaping laceration of it would, indeed, be in direct proportion to the care and good management of the practitioner; which, in the author's opinion, would seldom fail to dictate to him the great advantage, or rather the absolute necessity, of abstaining from all further use of the forceps, after having brought the head so far into the lower part of the pelvis as to make it bear upon the perineum. When the anterior part of the occiput effects its transit over the fourchette, the fore part of the head making a simultaneous movement downwards, the chin escapes often with a click from under the arch of the pubes. The instrument, if kept applied thus far, will now become disengaged from the head as a matter of course; the after part of the management should be conducted as in natural labour.

OF THE USE OF THE FORCEPS UNDER THE CIRCUMSTANCES OF THE THIRD POSITION.—In this position the forehead of the child is directed towards the right side of the pelvis; and the right ear is to be felt immediately behind the symphysis of the pubes. The foetal head is especially liable to become arrested in its progress when presenting in this position; and the arrest being, for the most part, solely attributable to the unfavourableness of the position; to rectify that position will constitute the practitioner's principal, or, perhaps, only duty. That being accomplished, nature will then, in most cases, finish her work with perfect facility and prosperity. Before, however, any attempt at an operation is to be made, the practitioner should be certain that the position is precisely, or very nearly, what we are now supposing. In this position of the head, the convex margin of the right external ear, anatomically called its helix, looks towards the left side of the pelvis. To facilitate the further progress of a birth thus arrested, the practitioner will have to reduce this position into the first position, by which the face will be carried

into the hollow of the sacrum, and the occipito-vertical part of the head brought forward, and made to engage under the arch of the pubes. To effect the change of position here recommended with as much facility, and in a manner to incur as little danger to the structures concerned, as possible, the author has to offer a new modification of forceps specially adapted for the relief of protracted labours, under the circumstances of the third and fourth positions. See Atlas pl. xxxviii. figs. 2, 3. With any of the forceps in common use, it is very difficult to effect the object now proposed, viz. that of changing the relative situation of the fœtal head within the pelvis, from the third and fourth into the first position, without exposing the perineum to great risk of over-distention, and especially the frœnal fibres of the fourchette to fretting and laceration; and the still more important structures attached to and lining the cavity of the pelvis in front, to the danger of severe and destructive contusion.

By the proper use of the instrument now proposed, all these serious inconveniences may be very easily and safely avoided. This instrument consists of two blades of unequal length, and so curved as to fit accurately to a fœtal head of ordinary size, when applied respectively, the one over the superior portions of the parietal and frontal surfaces of its right side, and including the greatest part of the right cheek, and the other immediately behind the left ear. To accomplish this intention, the short-bladed branch of the instrument is to be introduced into the left sacro-iliac district of the pelvis, and applied to the latero-occipital portion of the head, the part immediately behind the left ear which will be found to correspond with the left sacro-iliac junction of the pelvis. The long blade is then to be passed up along the right lateral and anterior region of the pelvis, and so applied as to include within its fenestra a portion of the right cheek, and a considerable tract of surface, situated above and anteriorly to the right ear. The blades are then to be so adjusted, that the short one shall act as a fulcrum, and also in some degree as an antagonist, to the other, and admit of easy adjustment at the lock. The instrument being supposed to be properly applied and adjusted, as in fig. 2, a gentle rotary movement of the head is then to be effected from left to right, so as to bring the occipito-vertical part of the head into the arch of the pubes, and to carry the face into the hollow of the sacrum.



The reader may easily understand that with an instrument of this construction, the change in the position of the head may, in all cases admitting of relief by the forceps, be readily effected, without exposing the parts either within or at the outlet of the pelvis to any risk of injury from severe pressure. It is evident that no part of the short blade can easily come into contact either with the neck of the bladder or the urethra; a circumstance which of itself might be deemed sufficient to decide the superiority of this instrument, for the special purpose here to be effected, over every other specimen of forceps which have been hitherto proposed.

In order to effect this change of position, as he supposed the more easily, Smellie directed the whole of the head to be lifted up into a higher part of the cavity, or even above the brim of the pelvis; that he might be furnished with ampler space for the movement to be performed. In most cases, however, the required movement will be easily performed, without this previous lifting up of the foetal head. When necessary, the elevation should be made with great slowness and caution.

If the instrument to be used is curved in the direction of the edges of the blades, its counterparts should be so applied to the head as to ensure a correspondence of their convex edges to the face and anterior part of the head; the face being to be eventually carried into the hollow of the sacrum, with which the convex edges of the blades of curved forceps are especially intended to correspond. After effecting the required change of position of the child's head, the instrument, including both its counterparts, should be forthwith withdrawn. Nature will then, in a great majority of cases, finish the work. The child's head will speedily descend into the flooring of the pelvis; where it will gradually urge the perineum into a state of suitable relaxation; and whence it will eventually escape at the outlet without extraordinary difficulty, without danger, and without further assistance.

OF THE USE OF THE FORCEPS IN THE FOURTH POSITION OF THE CHILD'S HEAD.—In this position, the face is directed to the left side of the pelvis. The left ear is to be felt immediately behind the symphysis of the pubes. The further descent of the head into the pelvis is prevented by the malposition of the foetal head, as has been already explained in the preceding case; and its reduction into the first position is to be effected by precisely the same expedient, with the difference only of reversing the rotary move-

ment. In this case, the face being directed to the left side, the movement should be made from right to left, and describe about one-fourth of a circle; so as to carry the face from its arrested position on the left side of the pelvis to the hollow of the sacrum. This movement being duly effected, the labour will then probably advance without further assistance; or else it will require only a trifling contribution of auxiliary force from the forceps, to make up for the diminished power of the uterus, in consequence of the prolonged exertion of that organ. In some cases, where, from a considerable expenditure of uterine power it might be doubtful whether nature might be competent to resume her efforts; or where the case might assume an alarming character from the accession of hæmorrhage, faintings, or other dangerous complications, it would often be proper to finish the labour artificially, as soon as the state of the soft parts might warrant such a procedure. The reader will easily perceive that each of the last positions, viz., the third and fourth, will require for its relief its own appropriate instrument. The two instruments, as given in the Atlas, plate xxxvii. figs. 2, 3, differ only in their twist or oblique curve. This difference however is essential.

Cases of intermediate positions are, in practice, to be resolved into one or other of the first two positions. It should ever be remembered, in all practicable cases, that the child's face should be determined to the hollow of the sacrum. If we suppose the face to answer very nearly to the acetabulum of either side, that would be a position of the child's head departing very little from either the third or fourth of the regular positions of which we have treated; and it might become a question of some importance to determine how far it might be proper to attempt the conversion of such a case into a first position case. The general probability would perhaps be, that the child's body might be situated in the uterus, with its back towards one side of the mother, and its front towards the other. The appearance of a greater fulness on one side of the abdomen than on the other would add strength to this notion. Upon that presumption, it would unquestionably be the better practice to rotate the face into the hollow of the sacrum, by one of the third or fourth position instruments.

Should, on the other hand, the central parts of the face be in correspondence with a part of the pelvis, intermediate between the acetabulum and the symphysis of the pubes; then the much safer practice would be to bring the face directly forwards to

the front, and to carry the vertex to the hollow of the sacrum; combining, with that movement, a cautious attempt to advance the descent principally of the posterior part of the head. The reverse movement would very probably have the effect of dangerously twisting the neck. It is well known that the uterus usually contracts more or less powerfully soon after the escape of the liquor amnii, so as to come into pretty close contact with the more accessible parts of the child, and so as to retain it in its then actual position more or less firmly. In such cases, therefore, it would be very doubtful whether so great a change of position of the foetal head as we are now assuming, amounting at least to a full third of a rotation, might be followed by a corresponding change in the relative situation of the body of the child. In a state of comparative inaction, or of great relaxation of the uterus, such an instance of good fortune might perhaps be hoped for: whereas in the opposite condition of that organ, it would be improper to calculate upon any such advantage; and it would therefore be the duty of the practitioner to meet the other and less evil of the case, viz. that of changing the oblique position, now the subject of our discussion, to a second position case, notwithstanding the acknowledged difficulties and uncertainties incident to such cases.

As to the practice to be adopted in perfect third and fourth positions, the rule is precise, and admits of no doubt nor hesitation: it is to rotate the face from the side of the pelvis into the hollow of the sacrum. The great difficulty is to determine what might be the greatest amount of obliquity or departure from these positions that could be presumed to admit of reduction to the first position, compatibly with the preservation of the child's life. In the presence of strong uterine action, the author is satisfied that the better general principle in such cases would be, to rotate the face at once forwards into perfect correspondence with the front of the pelvis: and should the head eventually in that position fail to be propelled by the vigorous action of the uterus into the outlet of the pelvis, or prove even too large to admit of being brought thither by a safe use of the forceps; the case would then of course have to be referred to another department of instrumental midwifery.

OF THE DISPOSAL OF THE FORCEPS, AFTER THE HEAD SHALL HAVE BEEN BROUGHT DOWN SUFFICIENTLY LOW INTO THE PELVIS TO BEAR UPON THE PERINEUM.—After having brought down the



child's head to bear pretty strongly upon the perineum, it is the author's general practice to withdraw the forceps. The perineal tumour is, to a certain extent, to be considered as an evidence, that the outlet of the pelvis is not defective in its dimensions; and also as affording at least a presumption, that any subsequent tediousness must depend either upon want of sufficient uterine action to overcome the ordinary resistance, or upon the presence of an unusual degree of rigidity of the soft parts. Hence a positive deficiency of uterine action supplies a motive, and may be presumed, in such cases, to furnish a rule for not withdrawing the forceps until the fœtal head shall have been brought very low down into the outlet of the pelvis; so as to engage with a principal part of its bulk in the os externum. In the total absence of uterine action, of which the cases are indeed very rare, it is evident that the forceps may not be withdrawn until the delivery of the head shall have been entirely completed. In some, perhaps in most of these cases, it will be found a decided advantage to withdraw one of the ordinary full-sized blades, and to substitute for it the short or fulcrum blade of the forceps represented in Atlas, pl. xxxix.

In withdrawing the forceps before the final exit of the child's head from the pelvis, especially if we suppose the instrument to fit so accurately as our broad-bladed forceps are known to do; a little attention to the principle of such a movement becomes quite necessary. It is obvious that an instrument so considerably curved, having its interior surface hollowed out so as to embrace more or less closely the convex surface of the child's head; and having its own convex surfaces almost equally closely embraced by the parietes of the vagina and pelvis, should not be attempted to be withdrawn in a direct line: as such a procedure could not fail to involve the structure of the maternal soft parts in great danger of laceration.

The first movement to be made towards the removal of one of the blades of the forceps should be, to separate it perfectly from its fellow. The handle of the branch not intended to be withdrawn should then be moved to one side, or a little backwards or forwards as the case may require; in order to make room for the other to pass with more facility. The handle of the branch to be withdrawn should next be taken hold of by the proper hand, generally the right hand; and carried by a gentle circuitous movement forwards and upwards towards the

abdomen of the patient. The shank, and successively the different portions of the blade of the instrument, should then be raised and brought forwards by a continuance of the same movement, supported and directed by the other hand ; and the whole gradually withdrawn in such a curved line, as should ensure the mutual apposition of as much of the concave surface of the instrument to the convex surface of the foetal head, during every stage of the procedure, as might be practicable. By due observance of this method, the instrument might be withdrawn ; first one blade, and then, when necessary, the other ; without any danger whatever of doing violence to a single fibre of the parts concerned, and very often without even the cognizance of the patient. If it were determined, as a matter of indispensable necessity, to effect the entire delivery of the head by the forceps ; then it would become the duty of the practitioner to proceed slowly and cautiously to effect that object ; observing, however, the greatest care to follow nature as his safest guide. It is quite surprising how very gradual is generally the exit of the head through the outlet of the pelvis, and the os externum, in natural parturition, and most especially in cases of first labours.

If the degree of caution here recommended, amounting to the utmost abstinence from violence, be not observed in these operations of art, it will often be impossible to prevent contusion and rupture of the parts concerned. It might, indeed, sometimes become necessary that the operator, not only should desist from any further use of artificial power ; but also that he should guard the structures most exposed, and already perhaps in some degree injured by his manœuvres, against the effects of inordinately powerful efforts even of the natural agents of birth. It often requires great attention, and a degree of dexterity unfortunately not possessed by all who profess to practise instrumental midwifery, to pass up the second or right-hand branch of the common forceps, without over-distending and bruising the inferior fourchette, and the other parts immediately contiguous to and surrounding it. But an injury of this kind, however trifling in itself, proves in many cases an incident of most serious importance in the sequel ; as it seldom fails to become the commencement, or at least the disponent cause, of a rupture of much greater extent during the tremendous distention necessarily sustained by these parts at the moment of the head's final transit through the os externum.

OF THE USE AND SPECIAL PROPERTIES OF THE LONG FORCEPS.—The instrument known in this country by the designation of long forceps, is simply a pair of forceps of sufficient length to admit of their being applied to the head of the child before its engagement within the cavity of the pelvis. It is generally considered, I believe, both in this country and on the Continent, that the use of the forceps, under these circumstances, was first suggested and practised by Dr. Smellie. Smellie's *Midwifery*, book iii. chap. 2. So far, however, was that great improver of our art from considering the use of such a power devoid of danger, that he carefully abstained from recommending it to others, and even from exhibiting a specimen of the instrument in his lectures. The long forceps have scarcely yet obtained a sufficient footing in England to procure for them the consideration of an article of general sale. The author has known practitioners of eminence, in this walk of the profession, who had made trials of the long forceps in the earlier years of their practice, but who afterwards found reason to lay them altogether aside: and he would observe generally, by way of caution to practitioners of limited opportunities, that their most ardent partisans, with a very few exceptions, have been youthful candidates for professional distinction, without sufficient experience to warrant the eager confidence of their pretensions. For this reason, however, the long forceps should not be considered as an instrument totally destitute of safe power.

The long forceps, as the name implies, are much longer than the forceps in common use; and, as we have already observed, are of sufficient length to admit of being applied to the child's head before its entry into the cavity of the pelvis. In this country, indeed, they are exclusively used for that purpose.

The circumstances indicating the use of the long forceps are happily very few, and consequently of rare occurrence.

Of these indications, an insufficiency of space at the brim of the pelvis seems entitled to our first notice; at least as a matter of inquiry. The space required at the brim of the pelvis, in the direction of the conjugate diameter, is about four inches. The actual space supplied at this part, in a well-formed pelvis, is four inches and a quarter. The head of a child of standard size, measuring three inches and a half from one parietal protuberance to the other, both inclusive, and the soft parts within the pelvis necessarily occupying a certain amount of space; it follows that



the head of a well-grown child could not engage in a pelvis having only three inches and a half for its conjugate diameter, without the adoption of some contrivance for effecting either an enlargement of the conjugate diameter of the pelvis, or a diminution of the child's head in the direction of its transverse diameter. As to the former, it must at once appear impossible, in any sensible or useful degree, to accomplish it, compatibly with the safety of the patient. But with respect to the latter, it is well known that nature herself has made a beneficent provision for it, in the apparently unfinished architecture of the foetal head; in consequence of which it is mouldable, within certain limits, into different forms, and compressible in certain directions into smaller measures. In cases of limited confinement of the superior aperture of the pelvis, the agents of parturition themselves are found competent by the pressure to which they expose the gradually engaging parietes of the foetal head against the brim, to effect all the reduction of it which in such cases might be convenient or necessary. The power, however, of the uterus upon the child, whilst the head is yet above the brim of the pelvis, is probably not so great as after its descent into that cavity, when its contracting fibres may be well supposed to acquire a greater degree of power in proportion to their greater length of leverage. In some cases, however, of defective capacity of the pelvis at the brim, the uterus is often competent to prodigious exertions; so the foetal head has been sometimes known to sustain a diminution of bulk of upwards of half-an-inch in the direction of its transverse diameter.

If nature then is equal to the production of such important effects, it may well be asked, whether, in cases of the same kind, it can ever be justifiable or advantageous to interpose any assistance of art. We may assume, as a general principle, that nature must herself be right as to the very gradual manner in which she effects the compression of the foetal head. By a procedure so slow and cautious, the circulations both of the vessels of the brain and those of the scalp, are allowed time to accommodate themselves to the degree of compression which the head has to sustain. The compression is also made in the most favourable direction, and it seems probable that the foetal head might thus be compelled by nature to undergo a greater diminution of bulk in the requisite diameters, compatibly with the child's life, than might be safely effected by any artificial compression whatever. For these

reasons, it should be considered as generally very improper to have recourse to the use of the long forceps, as long as nature can be intrusted to exert her efforts without compromising the safety of the mother; and while she holds out a fair promise, that eventually, and compatibly with a living birth, she may triumph over her difficulty.

But in some other cases of limited defect of space at the brim of the pelvis, we occasionally encounter an apparent deficiency of uterine action, as if nature were really conscious of her difficulty and danger, when she might probably succeed in the ultimate propulsion of the foetal head into the pelvis, were her powers to be fully called forth and exerted. Such are principally the circumstances in which the use of the long forceps are indicated in cases of arrest of the head at the brim of the pelvis. But the long forceps must be used under these circumstances with extreme caution even by experienced operators; and in the author's opinion, should not be used at all by persons unaccustomed to the more common duties of instrumental midwifery, and not perfectly competent to ascertain the dimensions of the brim of the pelvis, together with the actual conditions of all the parts and functions of the subjects more immediately interested in the labour. From the very limited range of their possible utility in cases of this kind, the long forceps are obviously an obstetric power not often to be had recourse to even for the assistance of severe labours; and one, indeed, much more frequently to be cautiously tried as a preliminary measure, and a possible preventive of other and more desperate expedients, than to be ranked among the ordinary and positive resources of our art.

2. It may be added, that the use of the long forceps is further warranted for the relief of certain labours requiring a speedy termination on account of the sudden accession of dangerous complications. In cases, for instance, of profuse uterine hæmorrhage, the orifice of the uterus being supposed to be amply dilated, but the head of the child still at the brim of the pelvis, this method of treatment might sometimes very well deserve consideration in comparison with delivery by turning. In many such cases, the child's head might be brought into the pelvis with perfect safety by means of the long forceps; and when there, it would of course be accessible to the purchase of one or other of our several modifications of the short forceps.

3. The long forceps may also sometimes appear to be indicated in cases of labour complicated with rupture of the uterus. Head presentations, under these melancholy circumstances, are obviously the only objects of treatment by an instrument of this description. The patient usually sustains this tremendous accident either before or soon after the entry of the foetal head into the superior aperture of the pelvis, and therefore before it shall have got sufficiently into the interior of its cavity, to be within the reach of the short forceps. The long forceps would seem to be a resource, in such circumstances, not to be entirely overlooked; but certainly, on the other hand, not to be considered as of any great value; inasmuch as in most cases, the practitioner would find it extremely difficult to effect the application of his instrument on account of the great recession and unsteadiness of the foetal head after the escape of the body, whether wholly or partially, into the general cavity of the abdomen. Add to this, that defective capacity of the brim of the pelvis is the most frequent cause of spontaneous lacerations of the womb.

4. The author has already had occasion to advert to the occasional accession of syncope during labour. Should such an unexpected complication present itself before the descent of the child's head into the cavity of the pelvis, it might possibly in some cases be preferable to have recourse to the use of the long forceps, than to attempt the delivery by turning.

English practitioners having for the most part rejected the use of the long forceps, have consistently enough observed a very proper silence as to the mode of using them; whilst the majority of foreign writers have given such instructions for their application, as in some cases it would be extremely dangerous, and in others totally impracticable, to observe. We here more especially refer to the rule commonly prescribed by foreigners of applying the two branches of the long forceps over the sides of the head and ears of the child in ALL cases. This rule may, indeed, in some degree be considered as a consequence of the limited properties of the particular sort of instrument about which those gentlemen have written; inasmuch as the long iron-handled forceps of the Continent, and the long-bladed and wooden-handled instrument which has been usually called the long forceps in this country, and is the common forceps of Professor Siebold, can only be applied with safety to the sides of the child's head. But considering, as the author does, that a large



majority of the cases usually deemed proper objects of forceps operations before the entry of the head into the pelvis, are such as do not properly admit of the use of a pair of forceps under the circumstances of their commonly-prescribed mode of application, viz. to the sides of the child's head; he takes the liberty of proposing, for the special relief of the cases in question, a particular modification of the obstetric forceps, better adapted, as he thinks, for their purpose, than any variety of that instrument that he has yet seen. As however the instrument which he is about to propose, is neither intended nor calculated to supersede altogether the use of the old long forceps, and as the latter are also the more simple of the two, it seems right that we should first treat of those cases which are still to remain the proper objects of their application.

OF THE USE OF THE LONG FORCEPS WHEN THE FETAL OCCIPUT CORRESPONDS WITH THE FRONT OF THE PELVIS.---The most common position of the child's head at the earlier stages of labour is in correspondence with the oblique diameter of the pelvis, its occipito-vertical region being directed to one of the acetabula, and the forehead to the sacro-iliac junction of the opposite side. In a case of considerable confinement at the brim, this position would gradually resolve itself into one more or less transverse. In pelves, however, having more space proportionally in the direction of the short diameter than in that of the transverse, the occiput would, in most cases, be naturally determined towards the pubes. For cases of head presentation, under the circumstances of this position, the long forceps already in use appear upon the whole to be well adapted. That instrument might, however, admit of some improvement by a moderate increase of the breadth of its fenestræ, or, at least, of the fenestra of one of its blades, and preferably perhaps of that which in the course of its introduction should correspond with the left side of the pelvis.

As to the mode of using the forceps in this position, it is scarcely necessary to give any particular directions; it being as nearly as possible the same kind of procedure as was recommended in case first of the application of the common forceps. The remote situation of the head, in this case, will however allow the conducting fingers to be passed high up into the vagina, and perhaps in some cases require the whole of the hand to be introduced into the pelvis. After locking the instrument with great caution, so as to avoid the possibility of

including any important tissue within its grasp, we draw down with cautious firmness in strict correspondence with the axis of the pelvis. A few repetitions of efforts of this kind co-operating with the simultaneous exertions of the natural powers, will soon enable us to form some judgment of the probable issue of our interference.

An obstinate immoveableness of the head, and no perceptible descent or increase of engagement of it within the cavity of the pelvis being effected by such cautious endeavours, would naturally indicate the duty at least of PAUSING; and very probably, that of desisting altogether from further interference. To make an effort of this kind, with a view to the preservation of the child's life, with extreme caution, and yet with as much firmness as may be compatible with the perfect safety of the mother, is all that can be done to meet the utmost demands either of humanity or professional duty. To give every possible chance for the success of this movement, it might be sometimes useful to attempt to incline the child's face towards one of the sacro-iliac junctions, which might probably ensure for it some little more space than it could have when directly opposed to the promontory of the sacrum. This attempt failing as to one side, it might be right to repeat it as to the other. Having brought down the forehead below the level of the posterior part of the linea-ilio pectinea, it will then become necessary to carry the face to the hollow of the sacrum.

After having thus, with the greatest caution imaginable, completed the adduction of the foetal head into the cavity of the pelvis, it will be proper, in a great majority of cases, to withdraw the instrument forthwith, and to surrender the remaining part of the labour to the disposal of nature.

OF THE USE OF THE LONG FORCEPS WHEN THE FOREHEAD IS DETERMINED TOWARDS THE FRONT OF THE PELVIS.—The use of the long forceps supposes here, as in the last case, the foetal head to be yet situated above the brim of the pelvis, or to be only very partially engaged within the superior aperture. Labours, under the circumstances of this position, are attended with much more difficulty in every stage of their progress, whether treated by instruments or not, than their opposites in relative situation to the front of the pelvis. It has indeed been sometimes pretended, that by a dexterous use of the fingers, or at all events by that of the forceps, this unfortunate position might be gradually con-

verted into a more or less perfect first position. But as to any such power being possessed by the hand, the assertion is altogether unfounded, and amounts only to an idle and vain pretence; and with respect to the eligibility of the movement in question being attempted by the forceps, it is almost self-evident that such a procedure could not fail to effect the destruction of the child by giving a fatal twist to its neck.

To reverse this position therefore, however unfortunate, though it were not impracticable, which there is no doubt it would sometimes prove, should always be considered as highly inexpedient and dangerous. We have accordingly to meet the case as one really difficult to manage, and uncertain as to its issue. Both branches of the forceps must be passed up relatively to the pelvis as in the former case. The convex edges of the blades will of course have to correspond with the concavity of the sacrum, and their posterior frames or clams will have to embrace the posterior and vertical regions of the child's head. The instrument having been applied and duly adjusted, it will, in most cases, be advisable to move the occipito-vertical part of the head a little to one side of the promontory of the sacrum, and of course preferably to that side to which there may be an already-existing tendency. The prominent vertex will thus escape direct apposition with the superior angle of the sacrum, and consequently any obstruction which might be given to it by the projection of that bone, and so probably obtain a considerable accession of room for its descent in the less-occupied space about the sacro-iliac junction. The practitioner has then to draw down in co-operation with the natural efforts, and in the direction of that part of the axis of the pelvis which might be presumed to correspond with the actual situation of the child's head. When he thinks that he has brought the occipito-vertical part of the head sufficiently below the level of the promontory of the sacrum, he will have to rotate slightly his instrument back again to its former relative direction with the several diameters of the pelvis. The instrument should then either be withdrawn, agreeably to the principle of the rule already adverted to; or remain for further use, as the deliberate judgment of the practitioner might dictate, or the special demands of the case require.

OF THE USE OF THE LONG FORCEPS WHEN THE OCCIPUT OF THE CHILD IS DIRECTED TO THE RIGHT SIDE OF THE PELVIS.—In nine out of ten cases of arrest or difficult entry of the child's head



at the superior aperture of the pelvis, the actual position of it, is that of the forehead and face to one side, and of the occipito-vertical part of it to the other. With a trifling inclination of its back part towards the front of the pelvis, this is also almost always its relative situation during the earlier stages of natural labour. We have indeed seen, that in ordinary cases the head, during its natural descent into the pelvis, undergoes a gradual and spontaneous change of position : so that its vertex, which at first presents in more or less perfect correspondence with one of the acetabula, is gradually and imperceptibly veered by a gentle rotary movement towards the front, so as to be made to engage, with great advantage to its progress, under the arch of the pubes. It is evident however that in cases of defective capacity of the pelvis, and especially in those of labours rendered difficult by defect of space in the direction of the conjugate diameter, this gradual change of position cannot take place ; and therefore that the foetal head must remain situated transversely across the superior aperture, either until the difficulty shall have been surmounted by a strenuous and long-continued exertion of the natural powers, or until art shall have interfered to advance its progress.

Now if the arrest of the head thus situated at the superior aperture of the pelvis be really the effect of defective space in the direction of the conjugate diameter, a very little consideration will make it apparent that the long forceps of the ordinary construction is not an instrument really calculated to meet the demands of such a case. In the application of such a pair of forceps, the blades must embrace either the lateral parts of the head, or those of the forehead and occiput. Of the respective claims to our preference of each of these modes, the author is aware that there are extant some plausible descriptions : but let these pretensions be made the subject of a little examination. If the pelvis be already too small to admit the child's head to engage in it in the position which it is presumed already to occupy, which is that of a more or less perfect correspondence of the transverse diameter of the child's head with the conjugate diameter of the pelvis, how and where is it possible to find room for the introduction and subsequent occupancy of the two blades of a pair of forceps ? Those blades, in the instance of the most modern and most approved French forceps, are each of them a full sixth of an inch in thickness :

and let the individual instrument preferred be ever so lightly constructed, it must occupy a certain amount of space ; whereas the very condition of the case under consideration is that of an actual deficiency of space, or the absence of a sufficient amount of space in the direction of the short diameter of the pelvis, even for the engagement of the head alone ; without any addition to its bulk by the application to it of two blades of a powerful steel instrument. May we not also very properly insist upon the great and manifest danger of forcibly using a bulky and powerful metallic instrument, in a situation so important in respect to the nature of the structures concerned, and so confined as scarcely to admit of a remote chance of their escaping injury ?

These facts being as the author thinks indisputable, he is much disposed to the belief that the long forceps have rarely if ever been properly used in the manner and circumstances here supposed ; and that they never have enabled the practitioner to deliver his patient on the principles assumed, excepting in cases where nature, unassisted, might in all probability have performed the duty much better, and excepting also in some rare cases of complicated labours unaccompanied by any deficiency of space. The mere possibility of introducing the long forceps in the manner and circumstances here described, viz. that of passing up the two counterparts, one after the other, along the opposite sides of a head too large to engage in the cavity of the pelvis, is at obvious variance with the stated conditions of the case ; whilst, on the other hand, the adduction of the foetal head into the pelvis, subsequently to the reduction of its bulk by the compressing action of the forceps, must at any rate be an extremely tedious process, and therefore equally at variance with the vaunted facility, rapidity, and prosperous issues of some brilliant operations of this kind, of which we have too many published descriptions.

The author at all events considers the old long forceps as decidedly unsuitable for the relief of cases of arrest of the foetal head at the superior aperture of the pelvis, under the circumstances of either of its transverse positions. Accordingly he has to submit to the profession a modification of a pair of forceps, which may be used under these circumstances with considerable effect ; and certainly, if dexterously used, without any risk of doing an injury to the mother. See Atlas, plates xxxvi. and xxxvii. In plate xxxvi. is repre-

sented a model of this instrument in actual application to the foetal head, supposed to be arrested at the brim of the pelvis in a transverse position, the occiput being determined to the right, and the forehead to the left side of the mother. It consists of two counterparts of unequal length as well as of different and unequal powers. The long one is covered with leather and lined with a padding of the softest flannel; a considerable part of its blade being intended to apply firmly to the face of the child. At the distance of about an inch and three quarters from its extremity, the blade has a joint in it at B, admitting of a limited degree of flexion and extension. When this branch of the instrument is carried up to its proper destination, the jointed part of the blade will be found to correspond to the superior portions of the face. The movements of the part of the instrument anterior to the joint are made obedient to the will of the practitioner. The blade is to be passed up along the left side of the pelvis in the state of full extension. When distinctly felt to have passed over the great convexity of the forehead, and ascertained by examination to be so far properly introduced, the anterior part of the blade is to be bent down and applied closely to the face; which is to be effected by moving the nut A upwards. This little contrivance is very simple, and its mechanism is well represented in pl. xxxvii. fig. 3. The anterior portion of the blade is made capable of two degrees of flexion with the other parts, at the pleasure of the operator. In general it will be advisable to push up the nut to the highest catch, so as to produce the greater degree of flexion, which will give to the anterior part of the blade an ample purchase over the child's forehead and face. The shorter branch is then to be passed up along the right side of the pelvis, and applied to the child's occiput, to act both as a fulcrum and an antagonist to the other. The power of this instrument is only partially that of a pair of forceps. There is here no coequal counterpressure applied to directly opposite parts of the head. It acts principally as an adductor; the attracting power being applied to a surface nearly opposite to the presenting part of the head. The short blade being applied to the occiput, the two branches of the forceps are then to be mutually adjusted at the lock.

In effecting this adjustment, proper caution must be used not to include any of the tissues of the mother in the locking part of the instrument. Everything being thus made ready, we then



draw down, simultaneously with the parturient contractions of the uterus, in the manner and observing the precautions which we have had former opportunities of recommending. As the head is felt to descend into the cavity of the pelvis, the operator should endeavour to carry back the face gradually into the hollow of the sacrum. This latter movement might however, in some cases, be left to be accomplished either by the natural powers, or by the subsequent use of the short forceps, with blades of unequal length, represented in pl. xxxviii.

OF THE USE OF THE LONG FORCEPS WHEN THE OCCIPUT OF THE CHILD IS DIRECTED TO THE LEFT SIDE OF THE PELVIS.—The specimens of long forceps here proposed being curved in the direction of the edges of the blades, it is evident that the practitioner who might be induced to make trial of them would have to supply himself with two pairs, viz., one to apply under the circumstances of the last case, and the other to apply correspondently to the face and occiput when respectively directed to the left and right sides of the pelvis. The forceps to be used in this case are therefore precisely the same sort of instrument as what has just been represented in pl. xxxvi. and xxxvii., only reversed as to the direction of its surfaces: the longer branch of the former being a right-hand and that of the latter being a left-hand blade. The attraction is also to be effected precisely on the same principles. In drawing down therefore, in this case, we gradually rotate the face from the right side of the pelvis into the hollow of the sacrum. Before the latter part of this movement is completely effected, it would perhaps be sometimes advisable to withdraw the instrument, as was recommended in the foregoing case; as, in many instances, no further assistance of art would be necessary; whilst perhaps in some others the short forceps, delineated in pl. xxxviii. as being adapted to embrace the foetal head diagonally, might be found a safer and more convenient power.

Before we take leave of this part of our subject, we must be permitted to repeat the expression of our firm conviction of the very limited utility of the long forceps, and indeed of any instruments, of whatever name or form, which may be intended to operate on the head of a living child, when arrested at or above the brim of a confined pelvis. At all events, mechanical powers of this kind are never to be had recourse to in cases of confined pelvises, but as auxiliaries to the natural agents of labour of very

limited efficiency, and to be very rarely, and then most cautiously employed.

GENERAL OBSERVATIONS ON SOME OF THE MORE PRACTICAL POINTS OF INSTRUMENTAL MIDWIFERY.—Of all the questions that may occur during a deliberate consideration of this subject, none can exceed in importance that of the average frequency with which we should appeal to the instrumental resources of our art. We are not yet in possession of sufficient documentary evidence to enable us to decide this point; whilst the evidence we have is of so unsatisfactory and conflicting a nature as to afford us but very slender materials for useful practical induction. It has been stated by Prof. Boer (see *Medicina Obstetricia*, p. 443), that the forceps have been used in the practice of an individual or of individuals, whom however he has not chosen to name, in nearly one case out of every three labours. Professor Hagen of Berlin, *Versuche eines neuen Lehrgebäudes der Practischen Geburtshülfe*, 1782, delivered thirty-nine women out of three hundred and fifty, or one in nine, with the forceps. Professor Nägele of Heidelberg reports, that in the practice of the Lying-in Institution of that city, for the years 1817 and 1818, he used the forceps once in fifty-three cases; see the *Quarterly Journal of Foreign Medicine and Surgery*, vol. ii. p. 288. Dr. Burns's *Principles of Midwifery*, edit. 6, note in p. 441, gives the proportions of Professor Nägele as "very much corresponding with those of his own list." In a "statement of presentations at La Maison d'Accouchemens, between December 1799 and May 1809," furnished by the late M. Baudelocque, see Merriman's *Synopsis*, p. 306, we have the proportion of forceps cases to the whole number of labours as one in three hundred and fifty-three. In a synoptic table of the practice of l'Hospice de la Maternité, between 1797 and 1812, giving all the labours at 20,357 during that period, Madame Boivin (see p. 354 of her *Mémorial de l'Art des Accouchemens*) reports, that the forceps were used ninety-six times, i. e., once in two hundred and twelve cases. Madame La Chapelle, head midwife of La Maison d'Accouchement of Paris, in her *Pratique des Accouchemens*, vol. i. table comparative No. iii., reports the proportion of forceps cases to have been as one to one hundred and sixty-six. The entire number of labours amounted to 15,481 in nine years, wanting a few weeks. The author has private but official authority for stating that the forceps were applied eight times in the year 1823, in the practice

of the lying-in wards of the Obstetric School of Göttingen, where the whole number of patients is stated to have been one hundred and fifty, giving the proportion of forceps operations to all the labours as one to eighteen three-fourths. In justice to his learned correspondent, this information should be followed with the intimation that Prof. Osiander is in the habit of exercising a large discretion in the selection for admission to the institution of persons most likely to require the assistance of art. In a similar communication from Dr. Cederschjold, Professor of Midwifery at the University of Stockholm, the author has been obligingly informed that the forceps had been used for some years past at the Obstetric Institution in that city, in the average of one in a hundred cases. Dr. Luders, a physician of the official rank of Royal Danish District Physician at Eikenförde, in Holstein, states the proportion of forceps cases in his practice as one in a hundred and nine, on the average practice of three years. M. Lobstein reports, that he used the forceps, in the lying-in wards of the civil hospital at Strasburg, twenty times in seven hundred and twelve cases. See Leroux's *Journal de Médecine*, vol. xxxvi. p. 125. The late Dr. Bland, in his "Calculations of the number of accidents or deaths which happen in consequence of parturition," *Philosophical Transactions*, vol. xxxvi., reports that he used one branch of the forceps once in four hundred and seventy-four cases. Taking the mean proportion of forceps cases, as given in six different reports of the practice of the School of Midwifery at Vienna, under the direction of the eminent Professor Böer, vide *Medicinæ Obstetriciæ*, pp. 65, 131, 203, 429, 486, and 585, we have one forceps operation in two hundred and thirty-eight labours. In Dr. Clarke's Abstract of the Dublin Lying-in Hospital Registry, it is stated, that in the practice of that great national establishment, between the 1st of January 1787 and the 1st of October 1793, during which period 10,317 women were delivered, the forceps were used fourteen times.

When it is considered that the use of the forceps and the vectis has been very generally known in Europe at least for a full century, it cannot but appear surprising that there should still exist so great a discrepancy as to the proportional frequency of their employment in the practice of different persons. As to the highest proportional frequency referred to and justly condemned by Professor Böer, the author also has no hesitation in making it the object of his most unqualified reprobation. The Great



Creator certainly never could have constituted so many of the more amiable part of our species in a manner so miserably imperfect, as to expose a proportion of upwards of one-fourth of the whole sex to the detestable necessity of being placed at the mercy of steel instruments, in order to be able to consummate, most advantageously to themselves and to their offspring, a function so perfectly natural, and so necessary even to the existence of the human race, as that of parturition. It would seem difficult to suppose that such a necessity could occur even once in fifty-three cases, agreeably to the proportion most approved of by Professor Burns. With a disposition to make the amplest allowance for the influence of peculiar circumstances on the mind of Dr. Burns, the author must take the liberty of expressing his conscientious and deliberate opinion, that the numerical proportion of forceps operations to the whole of labours, approved of and recommended by that gentleman, is much too high to be received as a safe standard average for the general midwifery practice of these kingdoms. If every member of our profession practising midwifery could be supposed equally competent with Dr. Burns himself to use the forceps and the vectis, without compromising the best interests of his patients, still the author would consider the proportion of Professor Nägele as too high by at least four hundred per cent.

Dr. Burns dwells indeed with great earnestness on the dangers of procrastination TO THE MOTHER; and illustrates his doctrine by a reference to the results of the very remarkable tardiness of the practice, in respect to the use of instruments, adopted in the Dublin Lying-in Hospital, as published in Dr. Breen's tabular reports. It is a very common remark that comparisons are odious; but, in a matter of so much practical importance, the reader perhaps will excuse the apparent indelicacy of the following statement, which he will scarcely fail to place in contrast with some of the facts of the Dublin reports, viz. that the author does not recollect a single example in the practice of the Royal Maternity Charity in his district, of a forceps operation having ever proved fatal to the mother; and since the year 1817, from which period he has kept notes of all the principal incidents of his own practice in and out of that institution, he can speak with confidence that such a result has only once occurred either in his public or private practice.

1. Upon the whole, therefore, the author is inclined to the

opinion that it cannot be absolutely necessary to have recourse to the use of the forceps or the lever more frequently than once in three hundred, or at most in two hundred and fifty cases, in order to ensure for puerperal women the greatest possible advantages attainable from the employment of these obstetric powers.

2. In submitting the above proportions to the candid consideration of his professional brethren, as being in his judgment calculated to furnish much safer principles than those of Dr. Burns for the guidance of the general body of obstetric practitioners in this country, he begs to be distinctly understood, that he does not presume to maintain that a certain select number of that body may not be competent to use the forceps or vectis even once in fifty or sixty cases, after the manner of Professor Nägele, without incurring any material risk of injuring the persons of their patients. Upon looking over some of his midwives' delivery-books, he finds that he used the forceps nine times in eight hundred and thirty-six cases; and he has the evidence of a most distinct tabular entry, that no untoward symptoms succeeded to such interference in any one instance.

3. If we suppose the forceps to be often used as a mere auxiliary to assist in overcoming local or temporary difficulties, or in cautiously effecting the dilatation of rigid parts, and not systematically to be kept in application until the delivery of the whole head is accomplished; it is evident that such a limited use of them may be had recourse to with much greater frequency than if we suppose a rigid adherence to the opposite but very common practice.

4. Much of the danger incident to the use of obstetric instruments may be considered as fairly attributable to the ill-adapted construction of a very large proportion of those implements as they are furnished, from year to year, for general sale in the London market. There are scarcely two houses in this trade in the whole of the metropolis, that could produce correct specimens of the forceps represented in pl. xxxii. of our Atlas, though they all profess their most perfect competence to execute orders for them. This evil may perhaps be, in some degree, ascribed to the influence of a silly sort of affectation which has prevailed during the last thirty or forty years, amongst a certain class of writers and teachers, of treating the entire subject of instrumental midwifery, and especially its mechanical implements, with too little consideration, if not sometimes with contemptuous indiffer-

ence. Hence we have forceps of all conceivable forms displayed in the shops of surgeons' instrument makers, and of course purchased without due discrimination by students and inexperienced practitioners, from those of Assalini, which may be easily demonstrated to be the very worst that have ever been introduced into the art, to those of Osborn and Hamilton, which, if well constructed, are liable to fewest objections; and yet we have authors of very modern date, who have had the hardihood to assert, that the particular form of an instrument, giving to this expression necessarily a very large meaning, is a matter of trifling importance to the success of an operation. Loose and incautious representations of this kind cannot fail to excite the suspicion of a defective competency on the part of some of these gentlemen, for the function which they were then assuming, of giving instructions to others.

5. The reader is already apprised of the author's opinion, that instrumental midwifery has not hitherto possessed a sufficient variety of forceps to ensure the utmost attainable safety to its operations. It is well known that the hand, when properly adapted to its objects, is a much safer obstetric instrument than any implement that can be made of steel. This superiority is chiefly to be attributed to the soft texture of the integuments with which our hands are covered. The consideration of this fact has very naturally suggested the advantage of covering the blades of the common forceps with an integument of very thin and soft leather. But for some of the purposes of these instruments, the very slender covering of prepared calf-skin commonly used in such cases is not sufficient to afford all the protection to which the principle of guarding the naked steel, properly extended to its application, is capable of attaining. Hence some of the blades of the author's forceps have certain portions of their convex surfaces, especially those parts which might be called their shoulders, padded with a layer of soft flannel, in addition to the leather with which they are afterwards covered. It is evident that these are the parts of the instrument most liable to impinge painfully and injuriously against the structures lining and partly forming the outlet of the parturient passage. But by the contrivance here suggested, much of the contusion which they would otherwise be apt to produce may be prevented. The padding, which, by means of a few additional threads of fine yarn fastened delicately with a needle to the layer of flannel, is made



of considerable thickness at the shoulder parts of the blades, marked *n*, in fig. 2, pl. xxxii., and is then continued along the convex surfaces of the frames of the instrument as far as where the blades begin mutually to converge at *m*, where it ceases to be so distinctly felt. The same simple contrivance may also be easily adapted for furnishing a soft lining to the INTERNAL or concave surfaces of the same or of other blades of instruments of this class. The principal objection that can be brought to bear against these appendages to the forceps, is the accession of bulk which the additional materials cannot fail to give them. The validity of this objection is readily admitted in many cases, where padded instruments might be found inapplicable; but on the other hand, it is notorious that we have frequently to use the forceps to assist tedious labours, to change unfavourable positions of the foetal head, and for other purposes not at all connected with defective capacity of the pelvis. The covering of these instruments in the way here suggested, will be found not quite so easy as the common method; but still, with a little additional management, it will be found very practicable.

6. In all cases of doubt as to the amount and actual sufficiency of space within the pelvis, for the eventual accomplishment of a living birth, it should ever be considered a duty of the strictest obligation, on the part of the obstetric practitioner, to give the foetal subject the full benefit of a cautious trial to effect the delivery with the forceps or the vectis, before he could be justified in having recourse to the use of the perforator.

7. The slipping of the forceps over the head of the child can, in the author's opinion, never happen without exposing the subject of the operation to the risk of personal injury; nor without reflecting some discredit on the qualifications of the operator for this department of his duty. In the writings of foreign authors, both French and German, we constantly meet with examples of this untoward accident; and however kindly or candidly disposed we may be to impute its great frequency more to the objectionable form, and especially to the inadequate curvature, of their forceps, than to the exertion of inordinate extracting force; yet the magnitude of the evil is not, on that account, the less deplorable. Have we not a right to call upon those gentlemen to lay aside their national prepossessions, and to examine, with a calm and truly professional impartiality, the pretensions of certain varieties of English forceps, which they might use with much

more safety to their patients than their own, and really with much greater certainty of effecting all the objects of such instruments, without exposing the parties interested, whether the patient or the operator, to the extreme mortification and inconvenience inseparable from the accident of the slipping of the forceps?

8. But it is greatly to be apprehended that the slipping of the forceps is, upon the whole, not unfrequently to be ascribed to the use of too much extracting force. Dr. Jean Frederick Lobstein, physician to the obstetric department of the civil hospital at Strasburg at the period when the facts about to be stated occurred, has published the history of an operation with the forceps, in which the instrument is represented to have slipped FOUR TIMES. One of the consequences of this violence is stated to have been obliteration of the orifice of the uterus. But the patient survived, and recovered slowly and imperfectly, for the time. The case is dated October the 15th, 1809. It was the patient's first labour. She was twenty-nine years of age. Leroux's *Journ. de Méd.* tom. xxxvi. p. 150.

In describing another case, or probably that of the same woman at another time, M. Lobstein observes that the application of the two branches of the forceps offered no difficulty; although the principal part of the child's head was yet above the brim of the pelvis. But its extraction was attended WITH VERY GREAT DIFFICULTY, and could only be effected by the united strength of two persons pulling together and respectively at the two hooked handles of the forceps! The infant, which was a female, was brought away dead. It had experienced a trifling solution of continuity in the integuments of the head, from the first incision which M. Lobstein had made into the uterus. Its weight and dimensions were those of a child completely at its full time. The woman had an extremely good recovery. *Id.*, vol. xxxvi. p. 156.

The case which gave the celebrated Smellie the first idea of lifting up the foetal head in the pelvis, for the purpose of being better able to rectify its position, may admit of being very properly quoted as an example of great excess in the use of extracting force with the forceps. "The patient being placed as stated in collection xxv. no. 1, case 1, I introduced the forceps along the ears, holding the handles when fixed towards the vertex, which was to the right side of the os coccygis. Then I began to pull

from side to side, by which means the head advanced a little, but not so much as to allow the forehead to turn out below the pubes. In repeating these efforts, the forceps slipped off three times; though I did not observe till afterwards that one of the blades, by GIVING WAY, was the occasion of their slipping off the head." See also collect. xxvii. no. 2, case 4, where we have a similar example of an excessive use of extracting force with the forceps. "As the resistance was great, I gradually increased the force, and though the forceps slipped several times, I at last delivered the head by grasping the handles more firmly, and pulling up towards the pubes. But the perineum was torn by the sudden delivery; because I did not then know how to make the proper turns, and proceed in the slow and cautious manner which I have since adopted."

9. The accession of an obstinate diarrhœa soon after the consummation of severe labours, whether instrumental or otherwise, may, with great reason, be apprehended to arise from an inflamed state of the mucous membrane of the rectum, and to indicate a dangerous degree of contusion of the recto-vaginal septum. See, in illustration of this fact, Perfect's 33rd case, vol. i. p. 202, where the forceps would seem to have been perfectly well applied, but their application probably too long delayed. The case is given in the 4th edition.

10. Amongst the other consequences of extremely violent labours, the author has met, at distant periods, with two examples of acute and fatal purpura. In the former, it was his opinion that instruments had been indicated some time before the delivery took place; but they were not used. In the latter, as far as he could learn from the history of the labour, they had neither been used nor indicated. But the purpura supervened among other effects and symptoms of inordinate vascular action; for want, as it appeared to him, of sufficient activity in the way of depletion during the labour.

11. Is not the fever usually called puerperal ephamera to be considered as sometimes a consequence of contusion of the uterine and vaginal structures, from instrumental and other varieties of artificial labours? See Perfect's Cases, vol. ii. p. 84, case 84.

12. Should the use of the forceps be had recourse to for expediting labours supposed to be retarded by an unusual brevity of the umbilical cord; whether originally too short, or rendered so by being coiled round the neck of the child? This cause of



protracted labour may be suspected to exist when there is great recession of the foetal head, immediately consequent upon every expellent effort of the uterus. If the forceps be not used, the child may generally be expected to lose its life from too long a duration of the labour, added to a moderate degree of strangulating pressure, to which its jugular vessels can scarcely fail to be exposed during a great part of that time. The mother will also, on her part, have to experience a very hard labour, but generally without having her life implicated in any serious danger. If, on the other hand, we have recourse to the use of the forceps in such cases; the child, unless we suppose the delivery to be effected with great rapidity, will be equally liable to lose its life from a still greater strangulating pressure upon the vessels of the neck: inasmuch as the practitioner might often unconsciously, and almost unavoidably, make efforts to draw down the head in the absence of propellent action of the uterus, which would necessarily put the cord very tensely on the stretch. It might also be presumed that giving much artificial assistance in cases of insufficient length of the umbilical cord might not unfrequently become the occasional cause of hæmorrhage; from its obvious tendency to produce a premature detachment of the placenta from the uterine surface. The author has used the forceps on several occasions in the circumstances here supposed. In one case, hæmorrhage immediately followed the delivery, and the child was still-born. In the second, the child had suffered fatal strangulation; but in the third, the foetal life was not quite extinct, and, with some little management for its resuscitation, the child began to breathe in about five minutes after its birth. All the mothers had good recoveries.

13. Head-cases, with a hand presenting, together with the head, may be successfully treated by the forceps; although it should be added, that operative assistance of any kind will rarely be required in such cases. Such an operation, however, when necessary, should be conducted with the greatest caution, and with the utmost possible attention to the mechanism of natural birth. The instrument best adapted for its performance would be one of the varieties of the forceps with blades of unequal length, represented in plate xxxix. The short blade should be applied on the side of the pelvis occupied by the child's hand. See Baudelocque's Midwifery, note on § 1522.

14. Operations with the forceps are seldom performed so

early in a labour as to ensure perfect freedom from the risk of subsequent reaction ; even if we were to suppose that instruments of this class could always be used without materially increasing that risk. Hence the treatment of puerperals, under these circumstances, is usually a duty of much more than ordinary magnitude and responsibility. If the labour shall have been one of considerable severity and duration, before the decision to have recourse to artificial assistance is taken, and then the delivery is effected, with some difficulty, we might generally calculate on the subsequent accession of a smart symptomatic fever. Now it cannot be doubted that a fever of this description would have for its principal and proximate cause a state of great tenderness, approaching to that of contusion, or a highly inflammatory condition of the structures within the pelvis and the lower parts of the abdomen. But such a condition of the tissues in question could not be allowed to continue long, and perchance to increase rapidly in violence, without exposing the patient to very serious danger. Should therefore the high-toned fever, usually attendant on severe labour, not subside in the course of a few hours after a delivery with the forceps, the practitioner would have much reason to be anxious about the ultimate consequences of his case ; and, at all events, he would have no time to lose in trifling and temporising practice. On the contrary, he would have forthwith to reduce the excessive vascular action by ample bleeding ; to empty the rectum by an oily and demulcent enema ; and, as soon as possible afterwards, for the further reduction of the constitutional irritation, to place his patient under the full influence of opium ; which it would be generally proper to combine with a saline diaphoretic. After causing the vagina to be well cleansed with an injection of warm water, it might be of the greatest use, in many cases, to order the whole of that passage to be charged with a thin, soft, linseed-meal poultice. This duty, for an obvious reason, would be best performed by the practitioner himself. The poultice should be withdrawn every six or eight hours, in order to give a free exit to the lochial discharge. On all these occasions, the syringing of the vaginal passage with abundance of warm water should not be neglected.

It need not be added, that due care should be taken not to expose the patient unnecessarily during the performance of these troublesome but to her most important services, to the action of cold.

15. In the performance of forceps operations, the operator should on no account, even for a moment, suffer himself to forget the comparative value respectively of the lives that are intrusted to his disposal. A French writer, of a few years' standing, once indulged in very flippant remarks on the proportions of embryotomy and forceps cases, published by Dr. Bland, in his tabular reports of the Midwifery Practice of the Westminster Dispensary. The answer is, that in all the forceps, or rather vectis cases of Dr. Bland, the mothers SURVIVED and RECOVERED. The same, it is believed, is the result generally of the operations with the forceps, when performed by the more responsible midwives of this city. But what are the results of forceps operations in the practice of the great obstetric institutions of the French metropolis? Without attaching all the confidence to certain private reports, which from time to time we receive on these interesting topics, to which no doubt many of them are well entitled, we are at least fully entitled to appeal to such documentary evidence, as the results of the obstetric practice of our ingenious neighbours, which they have themselves thought proper to publish for the perusal of all the world.

In a work lately published in France, which professes to give a detailed account of the most interesting cases which have occurred in one of the principal Lying-in Hospitals of Paris, entitled "*Pratique des Accouchemens, etc. par Madame La Chapelle, sage-femme en chef de la Maison d'Accouchement de Paris,*" the authoress has given particular histories of upwards of ninety forceps cases. Of these more than ninety cases, nineteen are positively stated to have proved fatal to the mother! What can be the motive of the French government, in committing the precious lives of so many of their poor countrywomen so entirely to the incompetent hands of female practitioners in midwifery? It surely cannot be right that women should be intrusted with capital surgical operations, even on other women.

16. A hooked instrument should never be employed as a substitute for the forceps or the vectis, in cases of head presentation. This observation is meant of course to imply that the case to be treated is one of a character not to require the sacrifice of the child's life as an essential condition to the preservation of that of the mother. The moral obligation of this rule is, indeed, so self-evident, that any formal declaration of it might seem totally



unnecessary. Since the publication of the author's *Elements of Operative Midwifery* in 1825, he has great pleasure in believing that it has not been often, if ever, positively violated.

OF THE OPERATION FOR INDUCING PREMATURE LABOUR.—In the present article it is purposed to notice very briefly two modes of management not hitherto treated of, which the humanity and ingenuity of modern times have suggested for effecting the delivery of a certain class of unhappy women, the subjects of an unfavourable conformation, compatibly with the preservation of their own lives and those of their offspring. These consist in the performance of two operations: the one, a very simple procedure to effect the induction of premature labour; and the other, that of dividing the symphysis of the pubes.

Of the former of these operations, the idea was entertained by some of the more eminent practitioners of this metropolis as early as the middle of the last century. See Denman's *Introduction to the Practice of Midwifery*, chap. xii. sect. 10. It was first performed by Dr. Macauley, upon the wife of a linen-draper in the Strand, and it proved perfectly successful. From that period however till towards the close of the century, it remained, with very occasional exceptions, a subject only of professional curiosity and conversation. For the last thirty or forty years, however, it has been often performed in this country; not only in London, but also in other principal cities and towns of the kingdom. When instituted simply on account of deficient capacity of the maternal pelvis, it has been almost always followed by recovery of the mother; whilst, in the proportion of one-half of the whole number, it has also proved the means of preserving many hundreds of children, whose lives must otherwise have been unavoidably lost.

The original object of the operation for inducing premature labour was to enable a woman, having too small a pelvis for the birth of a child at the full period of gestation, to be delivered at an earlier period of a living child of immatured dimensions; but, nevertheless, of a child sufficiently developed to be competent to maintain after its birth an independent life. It has however since that period been had recourse to as a means of saving the lives of women become the subjects, at advanced periods of gestation, of alarming uterine hæmorrhages and other dangerous complications of pregnancy.

The principle of this latter indication is obviously capable of

being indefinitely extended for the benefit of pregnant women, whenever their lives may be implicated in danger; provided, indeed, such cause might be removable by the induction of a premature labour. The mode of performing this operation should have regard to the circumstances in which it is performed, and the objects for which it is to be had recourse to. If it be the intention to induce labour prematurely on account of defective capacity of the pelvis, it will in many cases be preferable not to perforate the membranes, but to effect the dilatation of the orifice of the uterus with the finger, gradually or by successive attempts without rupturing the membranes; and by that means to dislodge the viscid mucus by which nature plugs it up during gestation. This simple procedure, together with the separation of the membranes for the space of a few lines within the uterine orifice, is often sufficient to superinduce the action of labour; though in more than one instance the author has experienced disappointment as to that result. The method of performing the operation with the finger was first suggested and adopted by the late Mr. Jacob Jones, of Finsbury-square. It was performed, for the first time, and in peculiar circumstances, by that gentleman on St. George's-day, THIRTY-SEVEN YEARS AGO; and it has occasionally ever since been had recourse to under similar circumstances, by Dr. Sims and other leading practitioners of this metropolis.

If the gestation be supposed to be far advanced, and it be an object to ensure the accession of labour speedily, it would be advisable to perforate the membranes at once with an instrument; with which, however, there should be made but a very small aperture. The author's instrument for this purpose is a steel wire of about ten inches in length, and one-twelfth of an inch in diameter, affixed to a small wooden handle, of about three inches in length, to give it firmness of purchase; and gently curved at the point, that it may glide easily along the directing fingers towards its ultimate destination. The reader may see it represented in our Atlas, pl. xxxv. B. fig. 2, and it is also represented in the article on uterine hæmorrhage, p. 733. An aperture through the membranes, as small as may be made by means of this instrument, will admit of little more than a dribbling of the liquor amnii; and therefore it may be many hours or possibly a day or two, before the uterine contractions may fully declare themselves. Hæmorrhage, and other alarming

circumstances, may require the emptying of the uterus of its liquor amnii all at once, or, at all events, in a very short time. In that case, a long female catheter will supply the best instrument for the performance of this duty; as it will serve equally as a perforator for effecting the rupture of the membranes, and as a canula for quickly discharging the waters of the ovum.

The operation for inducing premature labour, on account of confinement of the pelvis, belongs of right to our first class of instrumental deliveries; it being considered as compatible with the preservation of the lives both of the mother and the child. Its proper objects, in reference to this indication, are women having only a moderate confinement of the pelvis; its capacity being supposed sufficient for transmitting a child of seven or eight months' growth; but too small to admit of a living birth to a child of the ordinary bulk and dimensions at the full period of gestation, even with the assistance of the forceps. When, therefore, a female of such a conformation shall have had one or more dead children from this cause, she should become the subject, in her future pregnancies, of this valuable operation. The precise time for its performance should depend on the supposed deficiency of capacity of the pelvis. If we suppose the smallest diameter, in any part of the pelvis, to be less than three inches, then the operation should be performed in the eighth month; and more or less early in the month, as that diameter is presumed to vary between two inches and three quarters and three inches. On the contrary, if the short diameter is known, or upon good and strong grounds suspected, to EXCEED three inches; it might be competent, on the part of the practitioner, to defer the operation till the first or second week in the last month of gestation; and then to perform it in such a way as to ensure the accession of labour in the most gradual and natural manner possible. The operation for the induction of premature labour is unquestionably a capital improvement in the obstetric art; inasmuch as it furnishes the means of saving the lives of many children, not only without any increase of risk, but with a great reduction even of the chance of danger to the lives of the mothers. It is in one sense indeed truly observed by Dr. Denman, that the objects of the operation are circumscribed within certain limits; viz., those of a mere sufficiency of space within the pelvis to admit of the transmission of a living child of seven or eight months' gestation, but not sufficient to admit of a living birth at the full period.



It must however be a matter of great satisfaction to know, that of the entire number of pelves, distorted or otherwise, too small to admit of the birth of living children of standard size, at the full period of gestation, a very large proportion, a majority it is apprehended of at least two-thirds, will be found to belong to the class of lesser degrees of confinement, and therefore entitled to be included within the limits prescribed by Dr. Denman as fit subjects of the operation for the induction of premature labour.

ON THE OPERATION OF DIVIDING THE SYMPHYSIS OF THE PUBES.— This operation on the human female was first performed upon a person of the name of Souchôt, the wife of a French soldier, on the 30th of September 1777, by M. Sigault, a surgeon of Paris: for I think there is no sufficient evidence that it was performed either by Galen or by Severin Pineau. See an explanatory and historical extract on the subject of Sigault's case from the Registry of the Faculty of Medicine of Paris, in the *Journal de Méd. etc.*, tom. xlix. p. 127.

The operation of dividing the symphysis of the pubes was proposed as an important accession to the art of midwifery, as a means of saving both mother and child in cases of confined pelvis, and as a substitute for the more desperate and so frequently fatal operation, the Cæsarean section. It has been performed with various success in several countries of Europe, from the date of its first promulgation till within a very short period of the present time. It has been most successful where, probably, it was perfectly unnecessary; whereas in cases of actual difficulty it has seldom answered its proper indication, that of saving the lives both of the mother and her offspring. Where the confinement of the pelvis is considerable, it yields too little additional space to admit of delivery being certainly effected without reduction of the child's bulk by the further operation of cephalotomy; and when only doubtful or very moderate, it would often be impossible to come to a positive conclusion as to the expediency of this or any other operation, before it might be too late to ensure the preservation of the child's life. From its great danger even to life, and the deplorable infirmities which it has so often entailed upon its subjects when it has not proved fatal, the Sigaultean operation has now fallen into almost total desuetude. In this country it has been performed only once; and in that instance it proved quickly fatal both to mother and child. *Simmons's Lond. Med. Journ.*, vol. xi. p. 46.

OF OBSTETRIC OPERATIONS CALCULATED TO ENSURE THE PRESERVATION OF THE MORE IMPORTANT LIFE OF THE MOTHER.—In cases of so much confinement or distortion of the pelvis as to make it incompatible with the birth of a living child at any period of gestation sufficiently advanced to derive advantage from the operation for the induction of premature labour, the next resource of our art is to reduce the bulk of the child by an operation necessarily fatal to its life. The head, when naturally proportioned to the rest of the body, is, it is well known, the most bulky part of the child; and, therefore, this is the part which most frequently becomes the object of the operation of which we have now to treat. We have already seen that the foetal skull consists of several different portions of bone, connected together by softer tissues, in such a manner as to admit of its being moulded into diverse forms, and shortened or elongated in its several diameters, by the pressure made upon it by the uterus and other parts concerned in the labour. From the operation of the same pressure, the part immediately presenting is put tensely on the stretch; and when deprived of its natural strength and firmness by the previous death of the child, it has been known occasionally to have suffered a spontaneous laceration; the integuments of the head and the linings of the skull giving way together, so as to admit of the sudden escape of a part of the brain, and immediately afterwards of sufficient collapse of the entire foetal head, to render its effectual transmission through the pelvis by the natural agents of labour mechanically practicable. Inasmuch, however, as this result has only very rarely occurred, and in the circumstances here presumed both mother and child might generally be expected to perish in the dreadful struggle, it has for many years been the established practice of this country, in these most deplorable cases, to ensure the preservation of the more valuable life of the mother; by effecting, artificially, what nature has occasionally, though confessedly very unfrequently, been able to accomplish in her own behalf.

The head being by far the most bulky part of the entire foetal subject, and the head being also, in a great majority of cases, the presenting part, it is usually found necessary only to perforate the skull, in order to ensure the delivery of the whole child. The operation consists in making an opening into the presenting part of the head, sufficiently ample to admit of the escape of a considerable part of the brain upon the further appli-

cation to the head, either of expellent or extracting force. The aperture may be made with any kind of pointed instrument. Some practitioners have accordingly used pointed knives, and others long and pointed scissors. The late Dr. Denman introduced an instrument for this purpose which he called a perforator. Without cutting edges, it yet bears a considerable resemblance to Smellie's scissors. That is the instrument which is now in general use in this country; and simply for the purpose of making the aperture in the foetal head, nothing certainly can be better adapted. It effects this object, however, neither sooner nor more safely than a pair of scissors of proper construction. The author therefore, in his own practice, prefers the scissors, because with that instrument, and not at all conveniently with the perforator, he is able with the greatest facility to effect the reduction of the brain and its membranous involucre into small portions. The length of his scissors is about eleven inches; from the joint to the points they measure two inches, and from the stops to the points one inch. The blades are a little curved, in order to ensure their gliding readily along the palm of the hand and the conducting fingers of the practitioner. The scissors or any other kind of perforator should be sufficiently strong and well tempered, not to bend when being introduced into the skull.

The perforation of the head with an instrument of this kind can be considered no other than an easy operation. It is generally advised to insinuate the point of the instrument into a suture or fontanelle. This, however, is a matter of no great consequence. On account of the mutual overlapping of the bones, and great protrusion of scalp, it may in many cases be difficult to find either a suture or a fontanelle. If the instrument be sufficiently strong, and the hand steady, and guided by a competent knowledge of the axis both of the pelvis and of the uterus, it will be found a preferable procedure to transfix the head in the very centre of the presenting part. Having accordingly conducted the point of the scissors to the part in question, and given it a moderate degree of fixedness, resting it on the integuments so as nearly to reach the skull, a finger of the left-hand should then be passed up to ascertain, by feeling carefully the whole of the presenting part, whether the instrument is in a direction to correspond precisely with the axis of the foetal head. That point being duly ascertained, the scissors are to be cautiously



driven into the cranium by a boring action as far as the stops; and then to be very carefully but widely opened; the utmost caution being used that no part of the external edges of the blades shall impinge upon and cause contusion of the uterus or other soft parts situated within the pelvis. This extension of the blades of the scissors is to be made in the direction of the transverse diameter of the pelvis, or rather in that of the actually longest diameter, whatever might be its direction. At this stage of the procedure, it has been advised by some partially to withdraw the instrument; to introduce it again in the reverse direction, and to enlarge the first aperture by opening the blades at right angles with the first extension; so as to make a large crucial laceration of the skull and scalp. In many cases, this mode of operating may be adopted with perfect safety; but in all cases of great confinement of the pelvis, it will be better not to run the risk of injuring any of the soft tissues by opening the instrument widely in the direction of the short diameter; and, indeed, if care be taken to divide the brain into small portions, as has been just intimated to be the author's practice, the crucial extension of the scissors or perforator may be perfectly well dispensed with.

A sufficient opening being made in the head, a part of the brain may be expected to be forced through it, by the bearing-down action of the uterus; and that action continuing vigorous, the child's head will undergo a gradually increasing diminution of its bulk; and eventually the whole of the foetal subject will very probably be expelled without any further assistance of art.

It may here be expected that we should notice a rule of practice which some authors have founded upon a knowledge of this principle, viz. that of surrendering the required compression and the collapsing together of the child's head, to be effected solely by the natural efforts of the uterus and its auxiliary propelling organs; these being considered adequate to the finishing of the labour even in cases of considerable difficulty, after the previous measure of opening the foetal head shall have been premised. But the practice which this doctrine would lead to, might in many cases be very inconvenient, if not dangerous. It is seldom that operations of this kind are performed, or ought to be engaged in, excepting at an advanced period of the labour, and until the patient shall have endured considerable sufferings, and

the natural powers of the function shall have been greatly reduced. But in such a state of things, does it seem probable that any substantial advantage could be derived from further delay; provided, indeed, the delivery could be forthwith effected by art, with equal or even greater impunity to the tissues and functions of the maternal organs? Not to add that protracted labours of the description which we are now considering, become sometimes suddenly complicated with the most dangerous symptoms and incidents; such as require the earliest possible delivery, as an indispensable measure, even to afford a remote chance of saving the patient's life.

The next step, therefore, in the accomplishment of these untoward labours is, what has been usually called, from the frequent employment of hooked instruments to effect it, *EMBRYULCIA*. The presenting part of the cranium having been perforated, and the cavity of the skull partially emptied of its contents; the foetal head will then in a large proportion of cases collapse, as already observed, into a considerably reduced bulk: and if the parturient action of the uterus be yet vigorous, the remaining part of the labour will often be speedily and safely accomplished without further assistance.

In the case, however, of a pelvis somewhat more distorted than we have now supposed, or otherwise defective in capacity; or on account of a reduced state of the natural powers, or of the accession of untoward and alarming symptoms, from whatever cause; it may sometimes become highly expedient in the progress of the labour, to have recourse to the use of extracting instruments. This class of instruments is of two kinds, viz. hooks and forceps; or varieties of other more complex pieces of mechanism founded on combinations of these principles.

OF EXTRACTING INSTRUMENTS FOR COMPLETING THE DELIVERY AFTER THE PREVIOUS USE OF A PERFORATOR.—The author has had the honour, at different times, of submitting to the profession, what he considered improvements upon the instruments previously known and used for these purposes. The principal distinctive property of the craniotomy forceps was the separableness at pleasure of their counterparts without any essential sacrifice of power. Notwithstanding the modest claims of a certain pretended improvement upon that instrument, the author considers the separableness of its two counterparts as one of its most valuable properties; and indeed

one which could not be conveniently nor safely dispensed with, in cases which might require the purchase part of the forceps to be applied over a large tract of the foetal head ; the head perhaps in the mean time high up within the cavity, or even above the brim, of the pelvis. It is well known that several of the surgeons' instrument makers have sold very imperfect specimens of the craniotomy forceps on account of the absence of this separableness of their counterparts. For this reason, and for want of proper dexterity in the use of them, it has been asserted that the craniotomy forceps have sometimes failed in their purchase ; although of this it appears difficult to conceive the possibility. To obviate, however, even the mechanical possibility of such an accident, to whatsoever ascribable, and to meet the general preference which seems to prevail in this country for the use of crotchets for the performance of embryotomy operations, the author has since published several varieties of guarded instruments of that class.

The instrument exhibited in Atlas, pl. xxxix. figs. 1, 2, 3, 4, is accordingly a specimen of a guarded crotchet intended to transfix the scalp and skull from without. The crotchet part of the instrument is represented in fig. 3. The hook is divided into three prongs, which are intended to enter the head at a little distance from each other ; in order to avoid as much as possible unnecessary laceration of the pericranial integuments. This branch of the instrument is to be passed up exactly in the same way as the common crotchet, when applied to the outside of the head, to the guide along the palm and directing fingers of the right or the left hand, according to the intended locality of its destination, and to be applied to the precise point of the head which it is meant to penetrate. The guard part, fig. 4, is then to be introduced into the vagina and through the aperture made in the head by the scissors or perforator, and passed high up into the cavity of the skull. The two counterparts of the instrument must then be carefully adjusted at the lock. Upon firmly pressing the handles together for this purpose, the crotchet prongs or teeth will enter the foetal scalp, and upon the application of moderate traction, will enter deeply into the substance of the skull. The handles then may or may not be secured by a tape, at the discretion of the practitioner ; it not being so indispensable a precaution in using this instrument as when the craniotomy forceps are used.



The first figure in the plate represents a portion of the foetal head removed for the purpose of showing the mode of purchase of the instrument. The crotchet branch is seen to have been passed up posteriorly and on the outside of the head, and to have penetrated the skull at a little distance behind the ear. The guard part of the instrument is seen to have been passed up through the aperture made by the scissors into the cavity of the skull. The position of the head may be supposed to be that of the forehead and face to the front of the pelvis, but inclining towards the left acetabulum. By the ring aperture in the blade of the guard portion of the instrument, or rather by the relative position of that part of it which forms the ring to the teeth or crotchet, the reader will easily perceive how those teeth must be perfectly protected. Their points being altogether under the level of the guard, it is evident that they cannot by possibility come in contact with a single fibre of the maternal organs. From the considerable extent of purchase possessed by the corresponding forceps surfaces of the shanks of the instrument, which in figs. 3 and 4 are represented as being strongly ribbed or fluted on purpose, sudden lacerations of the foetal scalp and extensive fractures of the bones of the skull are in a great measure avoided. The power of the instrument is such that it cannot fail to act during every stage of its use, in perfect conformity with the intention of the operator, and according to the degree and direction of the force which he finds it necessary to apply to it.

Whilst speaking of the power of this piece of mechanism, it may indeed be observed, that some persons have considered it as unnecessarily bulky. The author's answer has always been, that the strength of the instrument is no further an objection to it than can arise from its weight. Its precise weight, however, is one pound and five ounces avoirdupoise. The object of so much power is, to provide against the possibility of any accidents which otherwise might arise from the easy bending, or the mere action of the elasticity of either of its branches; which, by the loss of the mutual parallelism subsisting between the crotchet and its guard, would expose the patient to all the risk incident to the use of the common unguarded crotchet. Surgeons' instrument makers are generally in the habit of making embryotomy instruments much too slight, under the impression, it is presumed, that they are more handy and

portable, and less liable to the charge of clumsiness; whereas, the first principle of all extracting instruments with sharp hooks or teeth should be, an inflexible firmness of purchase. With an instrument of this kind, it is obvious that a practitioner may use much more power in a given time, and compatibly with the most perfect safety, than he can with any sort of hooked instrument without a guard; inasmuch as he may not only apply more attracting force in the abstract, but vary to a considerable extent the amount and direction of his force, by which he will often very greatly reduce both the difficulty and danger of the operation.

The crotchet part of the instrument just described, as already stated, is intended to transfix the foetal head from the outside. But as it has been pretty generally the practice of this country for several years past to fix the crotchet into the skull from within its cavity, the author has thought it his duty to consider of some method of meeting this general preference, at the same time without losing sight of the security to be derived from an effectual guard. Accordingly, in pl. xl. is represented a guarded crotchet, consisting, as in the former case, of two counterparts; one, the crotched part, armed, as may be seen in fig. 3, with three stems or prongs, to be introduced into the interior of the skull, and the other to be passed as a guard to it on the outside of the head. The author's motive for preferring a plurality of stems, has been his wish to ensure an ample purchase, with less probability of extensive fractures of the foetal skull than might be sometimes occasioned by a crotchet armed only with one large stem. A more perfect idea may be obtained of the relative situation of these prongs to the blade part of the instrument, whence they project, from the profile view of them, given in fig. 2, than from the view of them, necessarily foreshortened, given in fig. 3. They form an angle with the shank of about thirty-five degrees; and, moreover, they are a little curved from the base to the point; their convexity looking towards the point, and the concavity towards the handle. In the shank of this part of the instrument there is a slight bend, in order to make room between the purchasing parts of the two blades for the thickness of the foetal skull and scalp. The handles and locking apparatus are precisely like those of the common forceps, excepting that they are considerably stronger both as to wood and metal, as an insurance against the possible

loss of parallelism between the teeth of the crotchet and the apertures destined to receive them in the guard. The guard is represented with great fidelity and success in fig. 4. The purchase part of the guard is hollowed out in the manner of a spoon, and perforated with three oval holes, so situated respectively as to correspond with the prongs of the crotchet. Between and posteriorly to these apertures are fixed two pieces of steel, which rise from the bottom of the blade a little below the level of its edges. Their surfaces are made rough like those of a rasp. The use of these projections, it may be easily understood, is to apply upon the foetal scalp a pressure, counter to that made on the skull by the teeth of the crotchet, in order to ensure the penetration of the latter without the possibility of their slipping purchaseless along the smooth cranial bones, or of failure from any other cause whatsoever. The use of the entire instrument is well represented in fig. 1. The head is supposed to be situated relatively to the pelvis, with the occiput towards the front. The aperture is made with the scissors or perforator in the centre of the presenting part. The crotchet part is introduced through that aperture into the cavity of the skull, and applied to the interior surface of the superior and right lateral region of the head. During the introduction of the crotchet, the palm and fingers of the directing hand are made use of, at once to conduct and to guard the teeth of the crotchet in its passage along the vagina, until its complete entry into the cranial cavity is effected. The crotchet blade having been thus securely lodged within the skull, the guard blade is to be passed up, directed by the same hand, and applied to the corresponding part of the head on the outside. Upon adjusting the instrument at the lock, the teeth of the crotchet will instantly find their proper positions as to their intended correspondence to the guard. After fastening the handles firmly together, and upon using the requisite degree of attracting force, the prongs of the crotchet will immediately penetrate the skull; and, gradually in the further progress of the operation, their points will so far pass through the cranial bones as to reach to the pericranium and scalp, and probably at length to indent the integuments. This effect is strikingly represented in fig. 1. The crotchet prongs, however, should never be so long as to reach beyond nor even quite so far as the external surface of the guard.

OF THE RULES AND PRECAUTIONS NECESSARY TO BE OBSERVED IN



THE USE OF CRANIOTOMY INSTRUMENTS.—1. The operation of craniotomy, necessarily destructive to the foetus, can never be thought of as a justifiable measure, until all hope shall have been extinguished, of being able to accomplish the birth of a living and unmutilated child by the natural passages, compatibly with a satisfactory degree of certainty of the mother's recovery.

2. To ensure the safety of the mother's life, it is to be presumed that the soft parts must not be exposed to the risk of dangerous contusion from the violence or long duration of pressure upon them; whether occasioned by the natural agents of parturition, or by the use of the forceps or other implements of our art unsuccessfully applied.

3. In cases of doubt as to the eventual competency of the natural powers to effect the delivery, or at least to propel the head of the child sufficiently into the pelvis to be within the safe reach of the forceps, the benefit of such doubt should always be given in favour of time; so long at least as it may be compatible with the absolute safety of the mother to put off the moment of interference. In all estimates however of the probable results of doubtful cases, the practitioner should never lose sight of the important fact, which in this Protestant country is not disputed, that the life of the mother is incomparably more valuable than that of the unborn child.

4. Before we yield finally to the suggestions of a professional expediency so deplorable as that of having recourse to this operation, it cannot be for a moment disputed that we should hold ourselves morally bound to avail ourselves of all other less formidable resources of our art. Under this remark the author may perhaps be permitted to recommend as an essentially preliminary measure, a very cautious trial of the long forceps.

5. The safe and proper use of the long forceps requires, however, as we have already seen, the union of much dexterity and intelligence. It is a power to be tried for the benefit essentially of the child; but not at the expense of additional danger to the mother. It may be claimed as a merit of the forceps, with the blades of unequal length, represented in plates xxxvi. and xxxvii., that they are of a form peculiarly calculated to enable the practitioner to apply to the child's head a considerable amount of attracting force, without necessarily exposing the parts at the brim and within the cavity of the pelvis to the risk of injurious contusion.

6. In cases of great confinement at the brim of the pelvis, the gestation at the same time being presumed to have arrived at its full period, the practitioner may avail himself of some latitude as to his choice of the time for making the aperture in the foetal skull. In the case, for instance, of a pelvis having for its conjugate diameter any measure short of two inches and a half; and that fact being assumed to have been ascertained positively by accurate admeasurement; he might then be permitted to introduce his perforator at almost any period of the labour; but generally the sooner after the rupture of the membranes the better, and after the accession of sufficient development of the orifice of the uterus to ensure the safety of the operation. The rule which has been commonly prescribed on this point, is that of not perforating the head until the orifice of the uterus shall have become widely dilated. In cases however of so much confinement of the pelvis as we are now supposing, the author has never known an instance where the orifice of the uterus became, at any time, dilated to the extent of its full capacity of development in ordinary circumstances. It should be considered, that as the head of the child in these cases cannot effect its entry into the pelvis by reason of its defective capacity, this natural instrument of dilatation, the foetal head, is not in a situation to exert its usual dilating power upon the uterine orifice.

7. As a general rule, the crotchet should be so applied as to enable the practitioner to draw down the head in the direction most agreeable to the mechanism of natural birth, and as much as possible in correspondence with its long axis; as also strictly in a line, during every stage of the extraction, with the curved axis of the pelvis. In cases of great confinement, it will be found a most important previous measure to have emptied pretty effectually the contents of the foetal head. The crotchet and its guard being properly applied and securely fixed at their handles, the practitioner is then to draw down in the proper direction, as already advised, with great caution and firmness. He should examine from time to time the perforated part of the head, in order to ascertain that there are no angular pieces or points of bone projecting beyond the integuments; which in the further progress of the operation might chafe and wound the vagina, and which therefore, as soon as recognised, should be carefully removed. The operator must not always expect to be able to

complete his operation in a very short time. The perforated and shattered head will always require some time to be pressed down into correspondence with the size and form of the confined and distorted pelvis through which it has to pass. In the event however of several well-directed attractions having been made without apparent effect, it will perhaps be advisable to change the locality of the purchase with the instrument; as it will not always be possible to ascertain the precise position of the child's head before the commencement of the operation. When, on the other hand, the operator has reason to believe that the head is gradually moulding to his purpose, and beginning to advance, though in ever so small a degree, along its destined passage, he has of course only to persevere in the same cautious efforts.

In ordinary cases, and in the absence of extreme confinement of the pelvis, the principal difficulty will present itself at the commencement of the operation, when the head has to pass through the superior aperture; inasmuch as in a large majority of instances of defective capacity, the greatest degree of confinement of the pelvis is there situated.

8. It is a very good rule, to be attended to in all cases of operative midwifery, where the application of artificial force is indicated, that the force to be used should be applied, in the first instance, in a very moderate degree, which then should be progressively, but still most cautiously, augmented according to the demands of the particular case. It is an advantage nearly equal of both modifications of the crotchets with guards, which have been described, that they are compatible with the exertion of a degree of force greater beyond comparison than can be exerted with equal safety with any kind of unguarded crotchet. In perusing this statement, however, the reader must not suppose that any degree of attracting force, to be limited only by the operator's muscular power, may be used with impunity in these operations; for it may be easily understood that a powerful man might be competent, in point of physical strength, to divide in sunder the entire pelvis of his unfortunate patient, with any sort of instrument which might ensure for him an unyielding purchase. What is intended to be conveyed is, that much greater force may be used WITH IMPUNITY with a guarded than with an unguarded crotchet. With a guarded crotchet the practitioner is at liberty to use both his hands at the same time; by which he becomes competent to effect his attraction with much more



steadiness and accuracy, and to vary the direction of the force applied, and the bearing of the purchasing part of the instrument on the foetal head, with a considerable addition of effect.

9. The operation of craniotomy is sometimes required to be performed in preternatural labours, when the head is too large to engage in the pelvis, after the delivery of the body. It is moreover not unusual to meet with preternatural presentations in cases of confined pelves. Either with or without manual assistance, the birth is generally pretty easily effected in such cases, until the head comes to engage at the superior aperture of the pelvis. If the defect of capacity be not considerable, and the foetal skull exceed not the ordinary dimensions, nor the usual degree of ossification, such is the power of a dexterous practitioner over cases of this description, that he will sometimes succeed in effecting the delivery by manual operation alone. This method not succeeding, it was recommended by Smellie, and the practice is still very generally adopted abroad, to attempt the delivery by the forceps. We are now of course supposing the child to be alive, and the forceps proposed to be used as a means of bringing the foetal head into the pelvis with the utmost possible despatch. But it does not appear to the author that the forceps are nearly so well-adapted an instrument for these cases as the hand. By passing up two fingers of one hand into the child's mouth, and applying the other hand to the shoulders, and drawing down the head in a line with the axis of the brim of the pelvis, observing at the same time the proper rules as to the mechanism of such cases, the child might be brought into the world alive much more frequently than by the most dexterous use of any kind of forceps that have ever been constructed. Moreover, it may be observed in favour of the hand, that it is always ready, as well as generally much safer to the MOTHER than any artificial implement whatever.

But in cases of considerable disproportion between the bulk of the child's head and the capacity of the pelvis, the life of the child would soon cease to be an object of protective treatment; and after its death, there could no longer exist any ground of hesitation as to the preferableness of opening the head to the application of much force of traction without that expedient, whether exerted by the hands or by the forceps. This duty then being determined upon, the scissors or perforator are to be taken up as in the former case, and by a boring motion forced into the interior of the

skull. But, as in this case we have not the head presenting, we should find it most convenient to perforate the cranium immediately behind the more accessible ear. A sufficient aperture having been thus effected in the foetal head, and the tissue of the brain and its involucra well broken down and partly evacuated, the several bones of the foetal skull will quickly collapse together, and the delivery will not usually be attended with much further difficulty. If we suppose the trunk of the child to have passed without assistance, or to have effected its transit at the expense of only a small degree of artificial force, the use of the crotchet would scarcely ever in such cases be required; unless indeed as a matter of convenience, to save time or trouble, we might choose to avail ourselves of that form of it which in this country we commonly call the blunt hook; and which, upon being fixed to the inferior and occipital part of the aperture, may be used in such a manner as to command a prodigious purchase.

OF THE BODY CROTCHET.—The two varieties of crotchets with guards, described in the preceding pages, are more especially adapted for operations upon the foetal head. But it sometimes happens, though confessedly very rarely, that other parts of the child may require to be made the subjects of similar operations. Under the circumstances of very great want of space at the brim of the pelvis, the author has known the whole of the foetal head removed; and yet the body remain entirely above the distorted superior aperture for several hours, and in defiance of repeated efforts to effect its extraction.

The instrument represented in the Atlas plates xli. and xli. B, is intended to accomplish the extraction of the body, after the previous removal of the head. The use of this instrument is so faithfully represented in plate xli. B, that the reader will instantly comprehend both the object and the mode of its application. The first figure, pl. xli., gives a precise idea both of the form and the dimensions of the first instrument on this principle that was ever constructed. Its shanks are made very strong, in order to ensure for it a great degree of compressing force, as well as of power of transfixing the foetal body with its crotchet prongs. The crotchet branch is to be passed up to its intended destination under the careful protection of the left hand of the operator, which of course must be previously lodged within the pelvis for that purpose; and the fingers carried up some distance above the brim in order to adjust and to fix the points of the prongs to the part of the child's

body which is intended to be made the locality of their purchase. When the crotchet branch is firmly fixed, the guard should be passed on the other side of the pelvis, and applied to the opposite surface of the foetal body. The locking should then be duly adjusted, and the handles of the instrument firmly bound together by a tape.

The first efforts of extraction, it need scarcely be observed, should be made in a line with the superior aperture of the pelvis, and in such a firm but cautious manner, as not to fail to bring the foetal body through its narrow passage, and yet without permitting any part of the shanks of the instrument to impinge against the parietes of the pelvis.

Figs. 4, 5, 6, of plate *xli*. are intended to represent an instrument precisely of the same kind with the other, but of such dimensions as necessarily to occupy much less space than it. In cases therefore of extreme confinement of pelvis, it might be expedient to make choice of this latter instrument; the shanks and the metallic portions of the handles being supposed equal, in all their dimensions, to those of the instrument represented in figs. 1, 2, 3. Accordingly these shanks, whatever be the dimensions of the purchase-part of the instrument, must be sufficiently strong to ensure them against all possible risk of bending, which would expose the purchase-branch to the loss of strict correspondence with the guard-branch, and therefore to the loss of the protection which otherwise it could not fail to receive from it.

In giving directions for the construction of all instruments of this class, young practitioners cannot be too particular in insisting on an unbending strength of their shanks and handles.

For gentlemen who may not choose to go to the expense of both these instruments, the author thinks the smaller specimen would be the best to order. The power and mechanism of the lock should be such as most completely to control the purchase-part of the instrument, and to ensure a most perfect protection of the crotchet by its proper guard.

OF EMBRYOTOMY OPERATIONS IN CASES OF EXTREME DISTORTION OF THE PELVIS.—The smallest measure of the pelvis, compatible with the extraction of a dead child piecemeal by the natural passages, without great risk of danger to the mother from the force used in the operation, has been more disputed than positively determined. The author has known examples of foetal

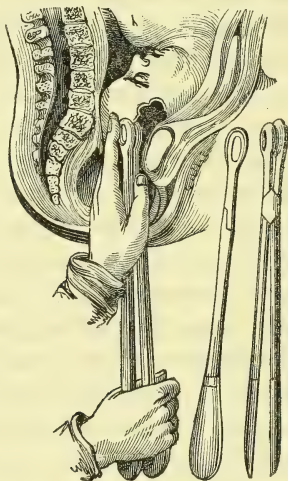


heads so large, even after being opened and evacuated, as not to admit of being brought down through the superior aperture into the cavity of the pelvis without the exertion of considerable force; even when he had formed his estimate from the most accurate admeasurement he was capable of instituting, that the conjugate diameter of the brim could scarcely be less than three inches. If we suppose the conjugate diameter not to exceed TWO INCHES AND A HALF, the extraction of the basis of the foetal skull would necessarily be attended with much additional difficulty. But if the intermediate space between the symphysis of the pubis and the promontory of the sacrum be presumed to be no more than TWO INCHES, then the attempt to extract a full-grown child by the natural passages by means of the crotchets in common use, or by any crotchets used with much force or for a long time together, would expose the subject of the operation to no little risk of contusion of the structures concerned in the labour, and consequently the woman herself to the eventual loss of her life.

The author wishes to be considered as making this statement very deliberately, and with due advertence to the opinions of Dr. Osborn, and others who have maintained a contrary doctrine. By guarding the hooked ends of instruments of this class, as we have seen has been very effectually done for all the specimens of crotchets in the preceding pages, it is obvious that we acquire a prodigious accession of power, and of power capable of being used with the most perfect safety to the mother, over the unfortunate cases which they are intended to relieve. After all, there must be limits somewhere to the safe use of crotchets; and these limits ought certainly to be such as should exclude even an approach to a violent exertion of attracting force, which might compromise the security of the important ligaments of the pelvis; or, if possible, the other still more important structures contained within its cavity.

In urging professional attention to the careful observance of these limits, the author is happy to feel himself in a situation to offer a safe substitute for the exertion of inordinate force in the treatment of the deplorable cases under consideration, not only without contracting the limits of our art, but compatibly with a valuable extension of its power. The expedient he alludes to consists in the application of a simple but very efficient contrivance, for effecting a much greater reduction of the foetal skull

than has hitherto been attempted in the practice of modern times. It is indeed a power by which any portion of the foetal skeleton, presenting at the brim of a contracted pelvis, may be broken down into small fragments of about half an inch in diameter, with the most perfect impunity to the tissues of the mother concerned in the operation. A representation of this instrument is given under the designation of osteotomist, or bone-pliers, in plates XLIII. and XLIII. B of the Atlas, and is also represented in the subjoined wood-cut. It is an example of a new application of me-



chanical power, combining the principles of a punch and pair of scissors. The whole of the instrument is made of solid and well-tempered steel. Its cutting ends are worked into two long and fenestrated oval rims of unequal size, but of nearly equal strength. The smaller is of a size to enter into and to fit closely within the parietes of the larger. The mutually adapted parts of each being formed into a continuous oval edge, they become competent when brought together, and firmly applied to their object, to exert a prodigious power upon any portion of bone placed within their grasp. The handles are of great length in proportion to the parts anterior to the joint; and, being of sufficient strength to be perfectly inelastic and inflexible, their power must be deemed equal to the full length of their leverage, multiplied by the muscular force in using them.

The author has, out of curiosity, and to show the extraordinary power of this instrument to his pupils, made large breaches

in strong ribs of beef, by cutting out of them a succession of pieces, in the manner represented in pl. XLIII. fig. 1; which indeed is given to illustrate the use of the osteotomist in its application to the foetal cranium. Having a power like this in reserve, it is evident that the employment of any inordinate force of attraction with the crotchet may almost in all cases whatever be happily and certainly avoided. One or two sections taken out by the osteotomist from the basis of the skull, which is by far the most bulky part of the foetal cranium, will generally have the effect of putting an end to all difficulty. In cases of greater confinement, a few additional sections will perhaps be required to be made, in order to give a sufficient degree of facility to the after part of the operation. The form and thickness of the different parts of the osteotomist may be easily conceived by taking a near view of its representations in pl. XLIII., especially in fig. 3. It will be there seen that the extreme breadth of its broadest oval rim is precisely three-quarters of an inch. It may therefore be taken for granted, that wherever there is sufficient space to admit of the introduction of this instrument, together with the point of an index finger to feed it with successive purchases of bone, it will be practicable to effect, and therefore prudent to attempt, the delivery by the natural passages. There are few pelves, even in large collections of distorted ones, with superior apertures so small as not to furnish from between an inch and an inch and a half of space in the direction of their conjugate diameters, or at least of antero-posterior diameters across some part of their brim. In any such cases, it would be the practitioner's duty to avail himself of the use of the osteotomist, and to undertake the delivery by the natural passages.

If indeed we are not greatly overvaluing the power of this instrument, it will enable skilful operators to effect deliveries in cases of moderate distortions with much more facility to themselves, and proportionally less danger to their patients, than heretofore; but it will also have the effect of reducing, almost to zero, the necessity of having recourse to that last extremity of our art, and the forlorn hope of the unhappy patient, the Cæsarean operation. In this country, it is well known, that with one exception, there being no good reason for disputing Mr. Barlow's case, the Cæsarean section has uniformly failed in the more important part of its object, that of preserving the most valuable life of the mother; whilst even in France and Germany



where it has been most frequently performed, its fatality, however variously reported by its friends and foes, has been universally acknowledged to have greatly exceeded in frequency its happy results. Any suggestion therefore for superseding the necessity of so formidable an operation, or even for greatly reducing the frequency of its necessity, seems entitled to the attention of the profession ; and that, indeed, is all that the author wishes at present to claim in favour of the osteotomist.

OF THE MODE OF USING THE OSTEOMIST.—The cases which form the objects of treatment with this instrument are of two kinds : first, those in which it may be used with advantage to facilitate delivery with the crotchet, and simply to supersede the necessity of much pulling with that instrument ; and secondly, cases of so much confinement and distortion of the pelvis, as must render delivery by the natural passages, without the assistance of some kind of osteotomist, impracticable. The first class of cases supposes a degree of confinement of the pelvis somewhat more considerable than merely to require an aperture to be made in the child's head. In a case, for instance, where the longest line, from any part of the sacrum, at the brim of the pelvis, to a corresponding part in front, might not exceed two inches and a half, the entry of the foetal head into the cavity of the pelvis, even after its penetration by the scissors or perforator, could not be expected to take place without the application to it of a considerable amount of force ; which, however, might either be propellent from above, and the effect of vigorous and long-continued uterine action, or that attraction from below, by means of crotchets, teeth-forceps, or other artificial powers.

The exertion of both these varieties of power, it may be easily understood, must have its limits. With respect to the former, it is often very greatly reduced, before it is finally decided to have recourse to the last deplorable expedient of opening the child's head ; whereas, on many other occasions, it might involve much serious inconvenience to admit of its indefinitely-protracted exertion. With respect to the latter kind of force, it is a form of power which, in a very great majority of cases of cephalotomy, might, if used with discretion and dexterity, be had recourse to most beneficially for those interests ; but, on the other hand, it should not be abused, by being too long delayed or too vigorously applied. With an instrument at hand possessing the properties of the osteotomist, the operator is happily relieved of all

motive for obstinate perseverance in his attempts to deliver by main force, whether by means of the crotchet, or by any other pulling instrument whatsoever.

The second class of cases to be benefited by the use of the osteotomist, are those of so much confinement of the pelvis, as to render the safe delivery of the patient by the natural passages impracticable, without the use of some kind of osteotomist.

Most of the authors who have written on the properties and uses of obstetric instruments, have referred to certain metallic implements used by the ancients for crushing and breaking down the bones of the unborn foetal subject. The *PISTRON* of Hippocrates was possibly some sort of contrivance of this kind. Whether that, however, or any other pieces of mechanism, known in ancient times, were really competent to effect the reduction, in any useful degree, of the bulk of the foetal skull, and especially of its *BASIS*, it is perfectly impossible for us at present to predicate; inasmuch as we have no descriptions left of their forms, precise objects, or principles of action. The osteotomist is therefore an instrument probably as new in principle as it is remarkable for its power. Its cutting edges are protected by being inclosed within the level of the thicker parts of their respective rims, which are everywhere rounded and polished into smooth surfaces, without points, angles, or projections of any kind.

The mode of using the osteotomist is so accurately represented in the principal figure of plate XLIII. of our atlas as to supersede the necessity of very minutely describing it.

The whole of the left hand should be introduced into the vagina. The index and long finger must then be carried forward into distinct contact with the portion or fragment of cranial bone most immediately presenting, so as to be able to feed the mouth part of the instrument with successive purchases, and to guard effectually every other kind of structure from entering within its grasp.

The entire length of the section of bone which the osteotomist is competent to remove by one action of its cutting power is precisely an inch; but it will be found more convenient to take off at one stroke, only about two-thirds of an entire section: and if this precaution be not attended to, the mouth of the instrument will be apt to get choked by portions of bone advancing too far within its clams, and beyond the purchase of its cutting edges,

which will have the effect of preventing those edges from closing; and therefore of more or less completely defeating the intention of the operator.

Having effected the removal of one piece of the most projecting and accessible portion of the foetal cranium, by firmly pressing together the handles of the osteotomist; then another portion of the skull is to be put within its cutting edges by the directing fingers of the left hand; and so the process is to be continued, until the basis of the skull is more or less completely broken down, or removed, according to the particular demands of the case.

PRECAUTIONS NECESSARY TO OBSERVE IN THE USE OF THE OSTEO-TOMIST.—The first requisite towards the proper application of this power is, that the instrument itself shall be perfect in its construction. Convinced as the author is of the great difficulty of ensuring this object by any further description of it which he might attempt to give; or by any more laboured admeasurement of its different parts than will be furnished in a future page in explanation of the plate in which it is represented; he trusts he may be permitted to avail himself of this opportunity, without incurring the charge of an illiberal partiality, to recommend to practitioners who may live at great distances, and more especially in foreign countries, to order at least their first specimen of the osteotomist of its original maker, Mr. Botschan, of 35, Worship-street, Finsbury-square; who is indeed a maker of obstetric instruments on a large scale for the trade, and an excellent workman.

2. Before we decide upon making the attempt to deliver by the natural passages, in a case of extreme distortion, it will be necessary that we should ascertain whether there be sufficiency of space to admit of the free use of the index and long finger, together with the purchase part of the instrument at the brim of the pelvis. The author's opinion might here be sought as to what should be considered the smallest space at the brim of the pelvis, compatibly with the practicability of delivery by the natural passages, with the option of using the osteotomist. He feels, however, that he cannot well meet this demand without incurring more responsibility than he is willing thus categorically, and without some further explanation, to undertake.

He thinks, however, that the instrument may be safely used within an intermediate space of an inch and a half between the



promontory of the sacrum and the anterior boundaries of the brim of the pelvis.

In plate XLIII. B, the reader will find represented an instrument constructed on the same principle with the common osteotomist, and, like it, intended to make its way through portions of the foetal cranial bones. The special intention of this variety of the instrument is to make long sections through, and in different directions across, the foetal skull. The sketches given in figs. A and B of this plate are intended to represent another variety of the osteotomist, in which the whole of the purchase or cutting part of the instrument is supposed to be curved laterally, and therefore to be adapted for making long but curved sections into the foetal skull. This form of the instrument may also be used with great safety and convenience, to effect the excision of polypi and other preternatural growths deemed proper objects of extirpation by excision.

OF EMBRYOTOMY OPERATIONS IN GENERAL.—The term embryotomy has generally been employed by systematic writers to express the more general mutilations of the foetal subject, for the purpose of reducing its bulk; and of course includes within its meaning the operation of craniotomy, as well as sections or cuttings with sharp instruments, of whatever kind, of all other single parts. In nine out of ten cases, it is only the head, which in general is incomparably the more bulky and unyielding part of the entire child, that is found to require this mutilating treatment. But, in a VERY SMALL proportion of subjects of extreme distortion of the pelvis, the cavities of the foetal chest and abdomen, sometimes one of these, sometimes both, are also required to be opened and evacuated. For the perforating part of these operations, the same instruments are to be used as are employed for craniotomy; viz. the scissors and perforator. The object of the operation is also the same, viz. that of enabling the operator to effect the evacuation of the contents of the cavity or cavities laid open. The contents in question may either be the natural viscera of the parts, or those organs with the addition of effused morbid fluids; sometimes in a gaseous, sometimes in an aqueous form. If only the former, viz. the natural viscera, we have to presume on the presence of an extreme degree of confinement of the pelvis: if the latter, the difficulty might depend exclusively on the morbid and preternatural bulk of the affected foetal cavity or cavities.

The relief of cases of difficulty from preternatural enlargement of the foetal subject, in consequence of effusion of morbid fluids into its cavities, is attended with very little difficulty. A mere incision into such cavities, in order to admit of the discharge of the fluids, is for the most part all that will be required to be done.

In making an aperture into the chest, we should observe the following procedure :—Either the head or breech must be supposed to be already born. In the former case, the practitioner encounters a great difficulty, and at length finds it impossible to bring down the chest. The head being supposed to be already born, an evidence thereby becomes accessible, either that the child is yet alive, or the reverse. If alive, however little might be the value of a life in such circumstances, the incision into the chest should be made with the utmost care; so as to avoid if possible the wounding of any of the visceral tissues within. It has been recommended to use a long flat trocar to effect this object; and the suggestion seems to be a judicious one. It is probable that the infrequency of births of this kind is the reason why nothing very precise has been decided upon, as to the most proper instrument to be used in such cases. A portion of the blade or point of the instrument, of whatever form, must necessarily penetrate into the cavity of the pleura costalis. The operator should endeavour if possible to fix on such a locality for his incision, as might give him the best chance of not encountering any of the more important vessels within. In the event of both pleural cavities being affected by the same disease, the operation of paracentesis would be required to be made into each. In such a case it would of course be proper to defer the second operation, until the first had failed to afford a sufficient reduction of the foetal chest to admit of the extraction. It being possible that the incision first made might be directed into the wrong cavity, it is scarcely necessary to observe, that it would then become the duty of the operator to introduce the point of his instrument into the other.

Obstructed births, from similar accumulations of aqueous fluids in the abdominal cavity, are to be treated much in the same manner, by puncture with a trocar, incision with a bistouri caché, or penetration of the distended parietes by a perforator or scissors, according to the special indications of particular cases. Immediately on the discharge of the fluid, the whole difficulty of the labour will generally cease, as a matter of course.

In the presentation of the lower extremities or breech, the difficulties incident to labours of this class would present themselves at different stages of the labour, according to the locality of the hydropic distension. Cases of this kind being of very rare occurrence, the practitioner should avail himself of all accessible means to decide the fact, before he could be justified in proposing or performing so formidable an operation as the paracentesis on a living child. Enlargements of the foetal head from hydrocephalus are much more frequently encountered than morbid distensions, from hydropic effusions, of either of the other cavities.

Cases of obstructed labours on account of distension of the foetal cavities with putrid gas, are to be relieved on the same general principle with the foregoing; viz. that of making an aperture for the escape of the distending fluid. A principal duty in the management of these cases, is to ascertain the fact or actual presence of the putrefactive process. The operation of perforating the affected cavity may be easily performed with any sort of pointed instrument.

OF THE UNAVOIDABLE MUTILATION OF THE FŒTAL SUBJECT IN SOME CASES OF CROSS PRESENTATION.—It has been for many years the established practice of obstetric practitioners, to perform the operation of turning by bringing down the feet in ALL CASES OF CROSS PRESENTATIONS, when occurring at the full period of pregnancy. Such indeed has been the estimation in which the operation of turning has been held since the days of Ambrose Paré, and so obligatory the duty of performing it in all cases supposed to require it, that several of our most approved systematic writers have scarcely even glanced at possible exceptions to the rule. The author, however, is not the first to call professional attention to the absurdity and danger of admitting the doctrine as a principle of universal practical application in the cases alluded to. See an excellent paper on that subject by the late Dr. John Sims, in Simmons's Medical and Physical Journal, vol. vii. p. 481. The operation of turning should be considered as a means most especially intended to preserve the life of the child; inasmuch as the mother might often be delivered, at least with EQUAL SAFETY TO HERSELF, and with much less inconvenience both to herself and to the operator, by other means. If, then, the foetal life has already ceased to be an object of our art, it being perhaps known that the child has really ceased to live, we then can have no other sufficient motive for choosing this mode



of withdrawing it from the uterus, than that, in some cases, such an operation might be very easily and safely accomplished. It is evident, however, that the motive in question can only be permitted to operate so far as to warrant a gentle attempt to effect the delivery in this way, and to seize an occasional opportunity of effecting it more conveniently, and with less probability of shocking the feelings of the attendants upon the labour, than by another method, to be presently described. The operation of turning, however, in the circumstances here supposed, especially if likely to be attended with difficulty, or at all events with danger to the mother, should on no account be undertaken.

But not only is the operation of turning objectionable in a case of probable difficulty, when the child is known to be already dead; but there are also cases where it should not be engaged in, even where there might be ample evidence of the child being yet living. Suppose, for example, the hand of the child, distinctly felt to move, to be the presenting part; that the liquor amnii is known to have escaped many hours before the question of delivery by turning is made matter of deliberation; and that, upon careful examination, it is discovered that the pelvis is certainly too small to admit of the delivery of a living child at the full period of gestation. In a case of this description, it is obvious that the operation of turning could only be had recourse to with propriety, as a matter of convenience. In respect to the child it could have no useful purpose; and, if likely to be attended with difficulty, it might also prove hostile to the best interests of the mother.

Again, we are sometimes called upon to give our assistance in cases of malpresentations, at a very late period of a labour; sometimes many hours, and occasionally several days, after the escape of the liquor amnii. Upon paying our first attention to such a case, we should discover, among other very serious indications, the following facts and symptoms: viz. an arm of the child presenting, much swelled; the vagina greatly tumefied, and very tender to the touch; the foetal shoulder driven down like a wedge a considerable depth into the cavity of the pelvis, or perhaps retained very high above the brim, from the body of the child being incarcerated within the contracted uterus; that organ being in close and rigid apposition to every accessible part of its surface; great foetor of the discharges; and yet constitutional power enough left to keep up a tremendous action of the

uterus, together with a corresponding excitement of the heart and arteries. Add to the foregoing circumstances the fact, that the patient may have been duly prepared for this forlorn attempt to save both herself and child, by a large bleeding, and by the exhibition immediately afterwards of a full dose of opium; but still without any sensible diminution of the strong and spasmodic bearing of the uterus upon the child, or consequently of the child against the brim of the pelvis. The author would appeal to any man of experience and acknowledged character in his profession, whether he could reasonably calculate, in a case like this, on being able to preserve the child's life by the operation of turning.

But we may suppose circumstances still more desperate. Let it be presumed, that the uterus and bladder, peritoneum, blood-vessels, or any other structures, situated in the neighbourhood of the brim of the pelvis, were in a state of contusion from the long duration and great violence of the parturient action, but still that the action in question might not be quite extinct. Experience proves that the womb may be ruptured by violent and pertinacious attempts to perform the operation of turning in these untoward circumstances. A state of contusion is, in other words, a condition of morbid tenderness of the tissues of the parts so affected. It can never be supposed to exist without being accompanied by symptoms of inflammatory action, indicative of a progress more or less rapid towards an eventual exhaustion both of the uterine and constitutional powers. The patient's life must be presumed to be already in a state of no little jeopardy; and great indeed would be the hardihood of the practitioner who would thrust forcibly into the cavity of the uterus, so large an instrument as his hand and arm, in circumstances so totally devoid of a prospect of being able to accomplish any good by it. From such an operation there would be everything to fear, and scarcely anything to hope for. In all probability the child would be still-born, if not actually putrid; and the mother's life, already in some peril, would be involved in ten-fold danger.

The expediency of the operation of turning should surely not be measured by the competency of a practitioner in point of muscular strength to accomplish it, but by a fair estimate of its promise and adequacy as a means of saving the child's life, without exposing that of the mother to much additional danger. If, therefore, we suppose the child to be already dead, or the

circumstances of the labour to be such as to make it impracticable to bring it into the world alive by means of turning, or impracticable even to perform that important operation at all without exposing the mother to extreme danger, it would then become the unquestionable duty of the practitioner to effect the delivery by embryotomy. The child in the case supposed being situated transversely, the first step of that procedure would be to divide it into two principal parts, by passing a well-adapted cutting instrument through the entire structure of the neck. Before the introduction by Ambrose Paré of the modern operation of turning by the feet, it seems probable that such a division of the foetal subject was occasionally performed by the older surgeons, and perhaps more frequently than it may have been even thought of since that period. The separation of the child's head from its body in the very circumstances of which we are now speaking, was indeed very distinctly recommended by Celsus : lib. vii. chap. 29.

It seems, however, that this idea of severing the foetal head from its body has never obtained a very general prevalence among practitioners in midwifery. Heister, indeed, alludes to it as an operation newly invented in his time by Van Hoorn. Heister Institut. Chirurg. cap. 153. sect. 9. The best-recorded case of this kind that the author is acquainted with, is one that was published some years ago by Dr. Sims, in the very interesting paper already referred to in the Medical and Physical Journal. It cannot be disputed that the general principle of the operation is just ; and it is a matter of some surprise to the author that its almost absolute indispensableness as a means of saving the mother's life, has not long ago, and more especially since the publication of Dr. Sims's paper, given it the importance of an established rule of practice in the treatment of arm and shoulder presentation cases NOT ADMITTING OF THE SAFE PERFORMANCE OF THE OPERATION OF TURNING. So far, however, is this from being the case, that the art possessed not a safe and suitable instrument to meet the proposed indication till within about ten years ago, when the author published his Elements of Operative Midwifery. He now feels some satisfaction in offering to the reader a choice of two instruments, of which both appear to him to be well calculated to effect the first and most difficult part of the operation, viz. the decollation of the foetal subject.

The first, represented in the Atlas, pl. XLII., figs. 1 and 2, is



a little contrivance of his own suggestion. As far as he knows, it is therefore new in its principle; and having had occasion to use it several times within the last six years, he may be permitted to speak of it as a useful accession to the mechanical resources of our art. Among his pupils it has generally had the name of "The guarded embryotomy knife." It consists of two parts, separable from each other at a common joint, of precisely the same construction as that of the English obstetric forceps. The more efficient counterpart is armed with a knife, diagonally attached to its shank, which is to be passed up into the pelvis properly directed and guarded by the practitioner's left hand, and carried over the child's neck, so as to obtain a perceptibly firm purchase of it. The other part, fig. 2, is simply a guard to the knife, and is to be passed up on the opposite side of the child's neck, to be then duly adjusted with its counterpart at the lock. The handles should be tied together with a strong tape; after which the practitioner would have to pass two fingers of his right hand into the pelvis, in order to ascertain finally the precise circumstances of his case, and especially the important fact of the child's neck being within the perfect purchase of the hooked embryotomy knife. That point being positively ascertained, the operator will only have to draw down the instrument with a cautious firmness, in the direction of the axis of the pelvis, and the knife will be found to cut its way through the child's neck very perfectly, and at the expense of a very inconsiderable degree of force.

The other instrument, see fig. 3 of the same plate, is one which the author's friend and colleague, Dr. Ramsbotham, has been in the habit of using in the same circumstances. In giving his kind permission to take a drawing of it, he referred for the idea of it to Dr. Sims's valuable paper already quoted. In that paper we find it stated that the late Dr. Garthshore had, many years previously to the drawing up of the paper in question, represented the blunt hook as an instrument with which he himself had easily performed the operation referred to. Some time afterwards, however, an opportunity occurred to Dr. Sims of making trial of the blunt hook in a case of this kind; which he considered a favourable one for "putting in practice the operation recommended by Dr. Garthshore; and accordingly" he "passed up a blunt hook round the neck of the child, which was so low down as to be easily got at; and he pulled forcibly, twisting at the same time, with a view of separating the head

from the body : but although the child was very putrid, the neck resisted a very considerable force ; a force, as it proved, sufficient to extract the child double as it was coming down ; the head and the thorax passing at the same time." In a subsequent part of the paper, Dr. Sims observes that the blunt hook, "if filed to an edge on the inner side of the bend, might perhaps be a very convenient instrument for that purpose, and appears to be the very same as that recommended by Celsus." See the passage in Celsus already quoted. Without taking upon him to determine how much of the merit of the present instrument should be apportioned respectively to Celsus, Dr. Garthshore, Dr. Sims, or Dr. Ramsbotham, he thinks he may safely venture to connect with the idea of it, now it is perfected, much beautiful simplicity and ingenuity.

With either of the above instruments, the operation of decapitation may be performed in most cases without any great difficulty ; and therefore of course without much additional exposure of the parts at the brim, and within the cavity of the pelvis, to the danger of contusion. The difficulty of such an operation, should indeed any difficulty occur, will be in proportion to the presence of one of two circumstances, viz., the amount of impaction of the child's shoulder and chest at the superior aperture of the pelvis, and the great distance relatively of the child's neck from the middle and inferior part of the cavity of the pelvis, where it would be most accessible to the manœuvres of the operator.

Both these instruments might be a little varied in their forms, by giving them a gentle bend at their shanks, in the direction of one of the flats of their respective blades ; and for some particular purposes, such a curve would be a means of adding to the facility of operations with them. The curve here proposed should, in both instruments, occupy the part of the shank most approximating to the cutting blades ; and in Dr. Ramsbotham's instrument it might include about an inch and a quarter of the cutting blade itself. These modifications are, however, not very important ; and any gentleman not choosing to incur the expense of more than one variety of either or of both of these instruments, should order them to be made as accurately as possible to the representations given of them in the figures 1 and 3 respectively of plate LXII.

After having effected the separation of the foetal head from its body, the latter is to be brought down foremost into the birth,

and delivered. If the arm is the presenting part, and is not in a state of very advanced putridity, that extremity will afford abundance of purchase for the extraction of the trunk. If however the shoulder should be the presenting part, the trunk will have to be brought down by means of the blunt hook passed up into the axilla. In either case, the extraction of the decapitated body will for the most part be easily accomplished. After the entire removal of the body, the head will generally be found to present pretty low down within the cavity, or at least very accessibly at the brim of the pelvis. In either case, the perforation and ultimate delivery of the head will seldom be attended with much difficulty. It has however happened to the author to have been consulted in a case of this description, where the unusually remote distance of the head above the brim of the pelvis, and within the body of the contracting uterus, made it extremely difficult to effect its perforation, by a pair of embryotomy scissors of the ordinary length. One of the gentlemen present very properly suggested that a much longer perforator would have greatly contributed to the facility of that part of the operation. An instrument perfectly well adapted to meet the difficulty encountered in the case in question, should have been at least twelve inches and a half long. It may be observed that Celsus, in the passage quoted above, directs the child's head to be extracted before the body, on account of the great difficulty and danger which he presumed would attend the bringing down of the head "in vacuum vulvam," after the previous extraction of the body. Celsus no doubt was in this matter a mere theorist. Except in the recent case to which the author has just alluded, he has never encountered any serious difficulty in bringing away the head, after the previous separation and removal of the body; whereas, under the circumstances of the usual relations, as to dimensions between the mother and the child, the extraction of the head before that of the body would appear to be almost mechanically impossible.

In cases of adventitious difficulty from the accidental coincidence of deformity of the maternal pelvis with the other and peculiar circumstances of the class of labours of which we are at present treating, it might be a good rule to wait a few hours after the removal of the body, before any attempt should be made to extract the head. The principle of this rule is obviously founded on the very reasonable expectation to be entertained,



that during the interval supposed, the bearing-down efforts of the uterus might greatly favour the engagement of the child's head within the pelvis; or at least so far promote the intention of the operator as to give it a firm but accessible lodgement at the superior part of that cavity.

PRACTICAL OBSERVATIONS ON THE USE OF EMBRYOTOMY INSTRUMENTS.—1. The objects of operations with this class of instruments are cases of so much disproportion between the size of the child and the amount of space within the pelvis, as not to admit of the practicability of a living birth by the natural passages. This want of mutual proportion may depend upon an absolute defect of capacity of the pelvis itself, or indirectly upon deficiency of space within its cavity, from its being occupied by tumours, or other morbid and obstructing bodies; upon preternatural size or excessive number of some part or parts of the foetal subject; upon an unfavourable presentation or position of the child or children relatively to the parturient passage; and lastly, upon a combination of any two or any greater number of these circumstances.

2. The osteotomist, plates XLIII. and XLIII. B. of Atlas, is an instrument more especially intended for breaking down the bones of the head or of other parts of the child. Its power is such that it will very quickly dispose of any other osseous structure that may be effectually presented to it. In using this instrument, therefore, the practitioner will not only have to guard any pendulous portion of the uterus, or other structures of his patient, but also his own fingers, from being included within its uncompromisingly destructive action. The peculiar modification of the osteotomist represented in the sketches A and B is particularly intended to make curved sections into the foetal skull; but it may be made useful for a great number of other amputating and extirpating purposes. In the treatment of monstrosities from excess of parts, it can therefore scarcely be doubted that this form of the instrument may be found a useful accession to the existing resources of our art.

3. Embryotomy operations having exclusively for their object the diminution of bulk of the foetal head, are generally to be considered as not very difficult of performance. Such difficulties, however, when they do occur, must be presumed to depend either upon great distortion of the maternal pelvis, or upon some very morbid or monstrous condition of the child's head.

4. Operations of the same kind, having any of the parietes or cavities of the foetal trunk for their object, may for the most part be expected to be attended with considerable difficulty. In some rare cases, the head, after being propelled into the interior of the pelvis, may remain there for a great length of time, without making any further progress; or may eventually be brought through the inferior aperture with much difficulty by means of the forceps; and yet the practitioner may find it impossible to bring down the body after it, even into the cavity of the pelvis. In a case of this description, it would become the first duty of the operator, after the delivery of the head, to ascertain, as accurately as he might be able, the nature and mode of operation of the obstructing cause. If it should appear that the child was not only quite dead, but actually putrid, he might almost certainly conclude, that the cause of the obstruction would prove to be morbid enlargement of the chest or abdomen, from distension of the affected cavity with putrid gas. An anasarcaous appearance of the integuments of the head and face, might be considered as indicating the effusion rather of an aqueous than a gaseous fluid into the cavities in question. In the event, however, of the child being alive, or in the absence of any proof of its being long dead, it might be very plausibly conjectured, that the cause of impediment to the further progress of the birth might be a monstrous excess, either of bulk generally, or the result of a plurality of the parts of the foetal subject.

In the treatment of any of the cases here supposed, the first step in the ulterior proceedings of the operator would be to secure a firm purchase of the child's neck, with a strong tape passed round it, or still better, if it could be conveniently done, through its substance; and then below the ligature, to effect neatly the separation of the head from the body. By this procedure, he would procure for himself more ample room to pass up his hand into the pelvis, or if necessary into the uterus, to ascertain the precise nature of the obstructing cause, and to guide any embryotomy instruments which may be further required, whether to perforate the chest or the abdomen, or to reduce and to remove monstrous parts.

5. In cross presentations, where it might be very difficult or dangerous to perform the operation of turning, or in case of difficulties not presumed to depend upon deficiency of space within the pelvis, it might often be a great advantage to have the child's

neck brought down as low into the cavity of the pelvis as might be practicable ; in order to make it more conveniently accessible to the purchase of the embryotomy instruments represented in our Atlas plate XLII. In the case of a hand and arm presentation, the procedure here recommended would be best effected by pulling firmly down at the arm ; and in that of a shoulder presentation, by drawing it down with the blunt hook passed up into the axilla. In the one case the arm, and in the other the blunt hook, would then have to be given to an assistant, to be held firmly down until the embryotomy knife of fig. 1, or the edged hook of Dr. Ramsbotham, fig. 3, plate XLII., should be passed securely over the child's neck by the principal operator.

6. The difficulty incident to the performance of embryotomy operations on account of cross births, must manifestly be greatly enhanced by distortions and other causes of defective capacity of the mother's pelvis. In some deplorable cases of this kind, it would require the most deliberate consideration of the practitioner, and the assistance if attainable, of a well-appointed consultation, to determine whether, under all the circumstances, the Cæsarean section might not deserve the preference in such cases to any mode of delivery by mutilation of the child ; as the latter might expose the mother to so much violent pressure and friction of the parts concerned, as could scarcely fail to prove fatal to her.

7. In cases of cross births, with the hand and arm presenting, not admitting of the safe performance of the operation of turning, the practitioner might very properly entertain some hope that the breech might occasionally be pressed down into the pelvis, together with the arm, shoulder, and upper part of the trunk ; or that, by the dexterous use of the common or body crotchet, he might himself be able to bring the inferior portion of the foetal trunk into the cavity of the pelvis, together with the part previously presenting. In a consultation case of this description, where turning had been unsuccessfully attempted, the author once effected this object with his hand only, and afterwards very easily delivered by the breech. The subject of the case was a patient of Mr. Sumpter of Crawford-street, Portman-square, assisted by Mr. Francum of Lisson Grove. This case, though artificially terminated, may be considered as very directly confirmatory of the doctrine of Dr. John C. Douglas, in explanation of the peculiar facts of the extraordinary labours



designated by the late Dr. Denman, "Cases of Spontaneous Evolution of the Fœtus." See Dr. Douglas's Essay already quoted, entitled "An Explanation of the Real Process of the Spontaneous Evolution of the Fœtus;" second edition, Dublin, 1819.

8. It has been a very common doctrine among the older writers, that embryotomy operations involve in them a great degree of criminality, if presumed to be had recourse to before the child is bereft of its life by the natural agencies of the labour. This unhappy notion must doubtless have often been the cause of dangerous procrastination. The child can but die. When therefore the absolute necessity of the sacrifice is once indubitably proved, it would be really cruelty, and not mercy, to protract the mother's sufferings one hour.

9. Embryotomy operations are frequently undertaken too late for the interests of the parturient; and that often happens without any particular regard to the prejudice just adverted to against making the child, while yet alive, the subject of mutilating operations. In every case of doubtful sufficiency of space to admit of a living birth, we are indeed not only permitted, but imperiously required, to give the case the benefit of whatever delay may be safely extended to it. But in cases affording no possible chance of such an issue, we should have recourse to the use of the scissors, and such other suitable embryotomy instruments as might be required, as soon as the orifice of the uterus might be sufficiently dilated to admit of their convenient and safe employment. There are two unquestionably great evils which might arise from delaying this important duty too long: viz. first, great irritation of the parts concerned in the labour, amounting possibly to contusion of their tissue, before the commencement of any operative proceeding; and, secondly, suspended or exhausted action of the parturient organs, in the absence of which the operator might find it extremely difficult to accomplish his purpose.

10. Embryotomy, in common with all other operations of midwifery, should be performed SLOWLY. The paramount obligation of this rule has been already so much insisted upon, that it need not be further illustrated in this place.

11. Embryotomy operations should not be performed at all, where they could not be performed with some chance at least of a favourable issue to the mother; nor even where that chance might not very decidedly preponderate over what might be af-

forded by the Cæsarean operation; and therefore, in the author's opinion, they should never be undertaken in cases of extreme distortion of the pelvis, without the sanction of a competent consultation.

12. In having submitted to his professional brethren the several new instruments and the other new forms and modifications of instruments already known, which have been delineated or described in the foregoing pages, it has been the author's principal object to provide the means of ensuring a greater degree of safety to the more important operations of midwifery than has hitherto generally attended them. How far he has succeeded in that object, he must now leave to the judgment of his more experienced readers.

OF THE CÆSAREAN OPERATION.—In an appendix to Rousset's work, *De Partu Cæsareo*, published in 1588, Bauhin makes the assertion that Eliza Alesspachen was the first subject of this operation, and that it was performed on her by her husband, who was a cattle-gelder, in the beginning of the sixteenth century. In the year 1581, M. Rousset published the first edition of his work. In the second edition the reader may observe that he had collected sixty-four successful cases of the same operation. By this activity on the part of its earlier propounders, its reputation rapidly extended over the most civilised parts of Europe. The more eminent surgeons of France at that period were Ambrose Paré and Guillemot, who were so much influenced by the high encomiums lavished upon it by the German writers, that they gave it their patronage, and each of them once performed it on patients of their own. The operation however, was unsuccessful in each case, and both those gentlemen, from being its well-wishers and patrons, became active enemies to its future adoption and extension. Its name probably led to the supposition which laid the foundation of the assertion which prevails rather loosely in the profession, that Cæsar owed his birth to a section of this kind, of which however there is no satisfactory evidence in history. It was at all events first performed in Germany, and being of capital importance, it was, agreeably to the language of the country, called Imperial or Cæsarean. It has been performed with various success, since its first introduction in the earlier part of the sixteenth century, perhaps in every country in Europe. In the British Islands it has probably been performed about twenty times; but it would seem unfortunately in

every instance, with the exception of the celebrated case of Alice O'Neil in Ireland, *Edin. Med. Ess.* vol. v. p. 360; and the woman in Mr. Campbell's grass-plantation at the ferry between Kingston and Spanish-Town in Jamaica, Moseley on *Tropical Climates*, p. 568; and also probably the Blackburn case, as communicated to the *Medical Records and Researches*, p. 154, by Mr. Barlow.

The subjects on which this operation has been performed have been living women, of forms so distorted as to disqualify them from becoming mothers of living children by the natural passages; and subjects recently dead, with a view of enabling the operator to rescue the offspring yet living, from being involved in the mother's fate. The practice of this operation in different countries exhibits such a confusion of objects, and such a discrepancy of opinions as to its legitimacy, that it is quite shocking the lives of so many women and children should remain at the mercy of so much uncertainty. It is generally believed in this country, that it is to this day considered a good practice in most other European kingdoms in every case of so much distortion of the pelvis as to be incompatible with a living birth by the natural passages, that the Cæsarean operation may be lawfully had recourse to for the benefit of the child. That this doctrine should be adopted in practice in Catholic states is not much to be wondered at, considering the paramount importance attached in those countries to the value of the rite of baptism as a means of salvation to the soul of the unborn infant; but that it should be insisted upon in the Protestant countries of Germany, where the same doctrine is presumably less strictly maintained, is a matter very much to be deplored. It is a common notion on the Continent that the proportion of recoveries of the mother from the consequences of this operation, are to the deaths, as one in five, which however the author considers as great exaggerations of the actual fact. Baudelocque, who was a strong partisan of this operation, acknowledged and proved by innumerable examples, that in his time, in France, the deaths were in proportion of nine out of ten of all who were made the subjects of it. It is become the established practice of this country never to propose the Cæsarean section excepting in cases of admitted impossibility of delivery by the natural passages compatibly with the eventual recovery of the mother. There can indeed be but a small proportion of cases where it



might be in any degree proper to depart from the obligation of this rule; but inasmuch as this small proportion seems to the author to have a positive existence, it would appear to be the duty of the profession to give it their most candid consideration. One of these cases is the example given by Dr. Denman, that of a woman who might repeatedly put herself in a situation to be impregnated after having previously acquired the fullest evidence of its being impossible for her to be delivered of a living child; by which she exposes her living offspring to the infliction of the fatal operation of craniotomy, choosing in the mean time not to risk her own life by becoming the subject of the Cæsarean section.

We might again suppose a case of extreme distortion of the pelvis in a woman, condemned, either by the laws or by the recognised influence of disease, speedily to lose her life; as, for example, in a case of advanced mollities ossium, or a rapidly galloping consumption, from which there might be no hope of recovery, nor even for many days or weeks of prolonged existence. It would appear proper that in any of those cases, the more valuable life of the child should be ensured by its abduction from the abdominal cavity by means of gastrotomy, or even by the Cæsarean operation, rather than that the mother's life, so almost totally destitute of value, should be preserved at the expense of the child, which the hypothesis supposes must be sacrificed. In consideration of the valuable obstetric instruments, and especially of the osteotomist, now in the full possession of the profession, few cases can be expected to occur where it might not be possible to deliver by the natural passages. For the benefit of such cases, it will of course be expected that we should give a few directions for performing the Cæsarean section. When had recourse to after the sudden death of a pregnant woman, for the benefit of the surviving child still within the uterus, few directions can be required; as the mere object in that case would be to bring the child out of the abdominal cavity as speedily as possible. For the sake of both living subjects when the chance is sought of securing the preservation of the lives of the mother and child, the following remarks might perhaps suffice. After an adequate consultation shall have decided upon the operation, the liquor amnii should be withdrawn by way of the vagina by stiletting the membranes, and the contents of the bladder removed by the catheter. The pains of labour having

pretty fully declared themselves, the incision through the integuments of the abdomen is to be at once undertaken. Its locality should be the *linea alba*, of which it should occupy at least six inches and a half or seven inches, and on the side of the median line opposed to that in which the placenta might be supposed to be attaching. Its commencement from below should be sufficiently distant from the bladder, to ensure that organ from the risk of being wounded. The first incision should merely pass through an inch or two of the integument and cellular membrane to the peritoneum, which should be carefully dissected, and an incision made in that tissue only of sufficient dimensions to allow of the introduction of *ONE* finger into the abdominal cavity. The index finger must then be used as a conductor to guide and to give security to the remaining part of the incision. Whilst this is doing, the assistants in the operation should of course be required to guard against protrusion of any part of the intestines, and to retain the several viscera as much as possible in their natural position. Any considerable artery which might be wounded during the first incision should be taken up and secured by ligature before it would be right to proceed further in the operation. The next step would consist in making an incision into the uterus, which on the supposition of the liquor amnii having been discharged, might admit of being an inch shorter than that through the integuments. On laying open the abdominal cavity, the hand should be forthwith introduced into the uterus in search of the feet, and the child quickly separated, and removed from the mother by bisection of the umbilical cord. From the infliction of so much violence, it might be expected that the uterus would speedily contract, and throw off the placenta; but if not, the hand should again without delay be introduced to effect its artificial separation. After its removal, a fine sponge should be made use of to take up any small quantities of fluid, whether blood or liquor amnii, which might escape during the operation. In the event of the uterine incision interfering with the locality of the placenta, such interference should, if practicable, be avoided or remedied; and in case it might be found impossible to select any other place for making the section, the practitioner should first make a very limited incision through the walling of the womb, by which he might introduce his finger for the purpose of separating the placenta from so much of the uterine surface as he might be able to calculate would be in the

way of the bistouri. Under these circumstances the child should be withdrawn if possible by its feet; and by means of as little of the hand introduced into the uterus as might be practicable, with the view of causing as little separation of the placenta as possible, until the living part of the ovum should be completely removed.

The wound in the uterus has been variously treated by different surgeons; some having employed one or more ligatures to keep its edges together, while others have entirely dispensed with their use. The author feels himself disposed to refer this matter entirely to the consideration of operating surgeons. He thinks, however, that the edges of the wound in the integuments should be brought and kept together by means of two ligatures; while in some cases preferably perhaps by three; observing, in that case, to preserve sufficient room at the depending part of the wound for the escape of purulent matter, or any other fluid which might be effused along its course. The patient of course should be subsequently kept on low diet, and in a state of great quietness both of mind and body; and generally, and in the fullest sense of the expression, be treated antiphlogistically. Considering the Cæsarean section to be, in point of fact, almost completely superseded in this country, the author thinks it quite unnecessary here to prolong the consideration of the subject.



## CHAPTER XVII.

## OF THE DISEASES OF THE PUERPERAL STATE.

THE first inconvenience which usually occurs to a woman speedily after delivery, is a slight disposition to fainting; and when it occurs at all, it is apt to succeed the birth of the child almost immediately; and is probably the consequence of the uterus being somewhat suddenly emptied, and is therefore analogous to the fainting which succeeds to the operation of paracentesis of the abdomen, in cases of great previous enlargement and distension of that cavity from ascitic dropsy. When fainting takes place soon after delivery, and when it is the effect simply of the cause just noticed, it is a symptom of a merely temporary duration, requiring no particular treatment. The admission of air into the room, the application of a bottle of hot water to the feet, and the exhibition of small quantities of some mild cordial, or a draught of cold water, will generally suffice to restore the patient to a state of comparative comfort, and at all events to a sense of security. No stimulants should be exhibited for this very unimportant symptom, as they might perchance, if given in the quantities which nurses in their discretion might choose to exhibit, excite the circulation, and thereby promote hæmorrhage. In cases of considerable fainting however, the circulation often experiences great reduction of strength, which should ever engage the instant attention of the medical practitioner; inasmuch as syncope from loss of blood might by possibility prove the cause of sudden death. An extreme degree of syncope is indeed in a majority of cases an effect, either of profuse hæmorrhage, or of rupture of some vitally important tissue; although cases of sudden death have sometimes occurred in the puerperal state, for which the nicest examinations subsequently have not been able to detect an adequate cause. The author has already had occasion to notice this fact. There have been few persons, extensively employed in the practice of midwifery for any considerable number of years, who have not met with repeated examples of fatal syncope in the course of their practice. The late Dr. John Sims once reported to the author, that he scarcely knew of any

practitioner of extensive experience and eminence in his profession who had not had the misfortune, on one or more occasions, of meeting with this formidable variety of syncope. The best treatment that could be advised for the relief of faintings after delivery, in addition to the exhibition of draughts of cold water, and some of the mildest cordials, as recommended in a former page, is the firm application of a suitable compress and bandage to the abdomen, together with active friction of the extremities. The practitioner will feel it his duty, no doubt, as a matter which might have no little influence on his own reputation, to pay the earliest possible attention to the condition of his patient in respect to flooding.

After the expulsion of the placenta and the whole business of the delivery shall have been completed, many women become the subjects, in the course of a quarter of an hour subsequently, to the recurrence of painful contractions of the uterus, analogous in respect to their periodical returns to the throes of labour. From this analogy of their character to the proper pains of the parturient function, and from their occurring after the pains of actual labour, they have been not improperly denominated AFTER-PAINS. It may be noticed, as a striking peculiarity of these pains, that they do not occur after FIRST labours, and moreover, that they seldom fail to present themselves after all succeeding labours. Such at least is a general rule, although not without some rare or very occasional exceptions. It is difficult to explain this difference of results, although it would seem to be obviously connected, in some way or other, with peculiarities of condition of the uterus, in the respective cases of first and subsequent labours. Some writers have supposed, that the absence of after-pains, after first labours, might be imputed to a power then possessed by the womb, of contracting more firmly and more completely than subsequently, by which it might be able to rid itself of its lochial blood at once, and without the necessity of further contractions; whereas after future labours it might not be competent to contract in the first instance with the same vigour as formerly, and therefore might admit of the retention, in the form of coagula, of some of the earliest effused lochial discharge, which then might be expected to require repeated contracting efforts of the uterus to expel them. Added to this explanation might be noticed, the utility of the painful contractions of the uterus, called after-pains, towards laying the

foundation of that reduction of magnitude which it is destined to attain at the completion of the puerperal state, or, in other words, in four or five weeks subsequently to the delivery. In the greater number of cases, after-pains might be represented as being of a tolerably mild character, although in most cases of sufficient amount to induce the patient to wish to have them moderated. Pressure of the abdomen, effected by compress and bandage, seems to be productive of little advantage in these cases; and it has been long the practice in this country to exhibit opium in successive doses to attain that object. It is not necessary here to prescribe any particular formula for that purpose; the quantity of opium to be given at a dose would depend upon circumstances, such as the state of the circulation, or the nervous system of the patient, or upon the general physical irritability of her constitution, or upon the degree of her fatigue after her labour, or perhaps on the hour of the day, or the actual approximation of the night, when she might be required to enjoy a sound sleep for a series of hours. It is the common practice of the profession to exhibit about eight or ten drops of laudanum, or of opium in any other form, in the same proportion, every six hours. In peculiar cases, and to subdue more than ordinary irritation, it might however be permitted, and should be the practitioner's duty, to exhibit it in much larger doses, as in half-drachm, or even in drachm quantities of the common tincture.

Some women are much more liable to after-pains than others, and also, in some rare instances, to an extreme intensity of their violence. Under those circumstances opium might not suffice to subdue them, nor very much to mitigate them; here the practitioner would find great advantage from the use of fomentations with flannel wrung out of the hottest water, or of any of the decoctions usually recommended and applied as hot as could be well borne. In the West Indies, the Creole midwives employ fomentations made of port-wine for this purpose, under the impression, that the wine is the ingredient to which they should ascribe the principal efficacy of the formula. These fomentations should be used, not only of a high temperature, but for an entire hour or more at a time.

OF THE IRREGULARITIES OF THE LOCHIAL DISCHARGE.—On the removal of the placenta the vascular tissue, by which that mass is connected during gestation with the internal surface of the



uterus, is torn asunder; and it is obvious, that such a separation must be attended with an instant escape of the greater part of the blood which the vessels in question had contained up to the moment of their rupture. Then it is that the lochial discharge is said to commence. But the strong determination of blood to the uterus at that period might be readily presumed to furnish a considerable oozing from the part of the surface to which the placenta had been adherent. Such oozing should be considered as furnishing the material of the lochial discharge. On an average of cases, the amount of the secretion, as this discharge has sometimes been called, is not very abundant; being sufficient only to soil about half-a-dozen napkins in the course of the first twenty-four hours. It diminishes considerably in quantity during the second day after the delivery, and still more during the third and fourth day, when for the most part it begins to assume a visible change of colour. In the cases of women whose habit is to menstruate sparingly, the lochial discharge is generally furnished in less quantity; whereas persons whose habit has been to menstruate more copiously, the lochial discharge has also been in more profuse quantities. There are cases recorded of the almost entire absence of the lochial discharge, without however being attended with any inconvenience. After having sustained this evacuation for five or six days, women generally expect to be in a great measure relieved of the inconvenience of it. Before however it entirely ceases, it is found greatly to diminish in quantity, and to assume a visible change of its colour; first from red to brown, and at length into a lightish green, which, in a certain proportion of cases, the subjects of them being of a delicate texture, have been known to tease and harass the patient for many weeks. Women refusing to perform their natural function of lactation, are especially subject to the inconvenience of this excessive fluor for weeks and months after their puerperal period, and also to uncertain returns even of the lochia in their sanguineous form. The continuance of the healthy lochia, for four or five days after delivery, and then their gradual diminution in quantity and final cessation, should generally be considered as an evidence of the patient's prosperous recovery; whereas their total absence or sudden suppression might be looked upon as a warning that some disturbance might be about to commence in the system; and that is the point of view in which they should be looked at with most practical

interest and anxiety by the medical attendant, inasmuch as the non-appearance, or too early suppression of the lochial discharge, is almost always a forerunner as also an accompaniment of the fevers incident to the puerperal state.

OF INFLAMMATION OF THE UTERUS.—Acute inflammation of the organs immediately concerned in parturition is comparatively so rare an occurrence, that its infrequency has often excited the admiration of medical men. The reason of this extraordinary fact may probably be found in the antiphlogistic offices of the lochial discharge; for when this discharge does not appear, or having appeared is suddenly suppressed, the uterus is very apt to become the seat of irritation, and of actual inflammation of its parietes, in common with its contiguous tissues. Inflammation of the uterus has sometimes taken place during labour, from the impediments opposed to the process, or in consequence of the violent struggles employed to accomplish it. Hence the greater number of severe labours are attended with inordinate action of the heart and arteries. In cases of this kind inflammation of the uterus may be ushered in by a violent shivering, before the process shall be completed. More frequently, however, the disease is a result of mismanagement on the part of the persons in attendance during the convalescence; and then it ordinarily supervenes about the third or fourth day, rarely so late as the fifth, after delivery. The rigor is often attended with harassing sickness and vomiting, and these symptoms are soon followed by a violent and often a throbbing pain in the region of the uterus. The lochia, if not previously suspended, become speedily suppressed; and the ordinary symptoms of an intensely pyrexial state are soon established. The character of this inflammation during its acute stage is that of high tone, by which it comes to resemble, in several of its most prominent circumstances, acute rheumatic fever. The abdominal pain is in a great measure limited to the uterine region, and seldom extends upwards to any great distance beyond the navel. Attendant on the excessive charge of blood which at this time is determined to the uterus, the patient becomes sensible of so great an increase of the temperature of the part, as to make her complain of an extraordinary perception of heat in the uterine region, which indeed the practitioner also may easily recognise by the application of his hand to the hypogastrium. After the cold stage has subsided, the skin at first is found very hot and dry, and then the pulse

may be expected to be hard, strong, and remarkably voluminous ; and this state of things often continues for many hours, if not previously subdued by judicious medical treatment. Most abdominal inflammations during the puerperal state are accompanied by a headache of more or less intensity. But these headaches differ from each other in different cases, as the inflammation affects different abdominal viscera. The headache which especially accompanies inflammation of the uterus, occupies either a superior part of the head, or one of its sides ; and occasionally but more rarely an occipital or a parietal portion of it. While suffering more or less intensely from one or other of these characteristic forms of headache, the patient is very apt to complain of a peculiar sensation of the surface of one side of her body, an idea of which she sometimes attempts to convey, by calling it a creeping coldness gradually ascending along the integuments towards the head. The cold stage at the commencement of its accession is accompanied by a remarkable shrinking of the features and reduction of the pulse. The rigor, after having continued from half an hour to an hour, is followed by a universal heat of the body of great intensity ; and that part of the disease may well be called its hot stage. If at this period of the complaint the patient shall have been inactively treated, it is succeeded by a profuse perspiration ; by which, under similar circumstances of inactivity in the management, she may be very much harassed for many days.

The principal predisponent causes of inflammation of the uterus are, 1, a state of high-toned action of its vascular system, induced by the severity of its previous exertions ; and, 2, a state of contusion of its tissues in consequence of inordinate pressure, to which it is sometimes exposed during the transit of the child's head into and through the pelvis. One, if not both, of these causes of predisponency to the disease might also be expected to operate more directly as an occasional cause. The more frequently observed occasional causes are however some striking mismanagement by the nurse, or other attendants ; such as allowing the patient the use of improper food and drink, exposing her to too high a temperature, either by keeping too large a fire, or oppressing her with too great a quantity of bed-clothing ; or, on the other hand, by permitting her incautiously to be exposed to the action of cold, or perchance to indulge in violent or unnecessary movements of the person ; by giving her leave to get



out of bed prematurely, and to sit up for many hours, or beyond her strength, during the first week after delivery. To these may be added the exercise, on the part of the patient herself, of the more turbulent passions and emotions, of whatever kind, and by whatever cause excited. The author recollects a remarkable example of the influence of an excited state of mind in the production, as it afterwards proved, of a fatal inflammation of the uterus. On the morning of the second day after the delivery, the lady's medical attendant violated a common and a very proper rule of ceremony, in not waiting to be announced, but hurried into the patient's room before she was prepared to receive him. She was engaged at the moment in responding to one of the calls of nature, and was therefore greatly surprised and alarmed at the equally unexpected and unwelcome visit of her medical friend. A tremendous shivering almost momentarily seized her; and in about three days subsequently she sank, a much-pitied victim of the severe but unintentional injury which was thus inflicted upon her.

OF THE TREATMENT OF INFLAMMATION OF THE UTERUS.—The fever which accompanies puerperal hysteritis, it has already been stated, is usually one of high tone, and therefore one which must be expected to require considerable activity of the treatment. If the services of the medical attendant be speedily obtained, he might often have it in his power to cut short the disease, or at any rate very importantly to mitigate its violence, IN THE COURSE OF A FEW HOURS. Bleeding in ample quantity should be had recourse to as a first measure. This rule was in former years modified with a qualifying addition to it, that it could not properly be undertaken until after the establishment of the hot stage of the malady. Since Dr. Mackintosh, of Edinburgh, has enlightened the profession on the innocence and even the utility of bleeding in the cold stage of fevers, the author has always had recourse to that measure, at however early a period he has been consulted upon the subject; and the experience of the results for several years has fully convinced him of the excellence of the practice. When bleeding is employed in these cases on an adequate scale, in the cold or at an early period of the hot stage, it seldom fails to ensure, in a very short time, the attainment of the object for which it is employed. The disease however being, as has been repeatedly stated, one of a prominently sthenic form, the reader will be prepared to receive the impression, which the

author wishes to convey most earnestly, as to the propriety of a vigorous performance of this part of his duty. The patient must be bled *AD DELIQUUM*; and nothing short of a scrupulous attention to this injunction can fully suffice to meet the demands of the case. But if she shall not have thus been vigorously treated during many hours, one bleeding may possibly prove insufficient completely to subdue the excited state of the circulation. Although the pain of the abdomen might be very much mitigated by one bleeding under such circumstances, it would often happen that the pulse would in a few hours gradually get up again, and the former state of excitement be re-established with a degree of violence scarcely inferior to what it had been before the bleeding had been resorted to. In such a case, the vein must be opened again, and permitted to bleed until full fainting shall be induced. This effect will be obtained at the expense of a much less quantity of blood than was found necessary in the first instance. If, after the lapse of about two hours subsequently to the second bleeding, the symptoms should remain still obstinate, the author would recommend the application of from fifteen to twenty leeches to the hypogastrium. The pulse still continuing frequent, with an irritable unsoftened tone of its action, the next important measure to be adopted, would be the exhibition of an emetic, consisting of one grain of tartarized antimony and a scruple of ipecacuanha; which might be expected not only to dislodge such alimentary matter from the stomach as it probably could not well digest, but also to produce a valuable sedative effect upon the arterial system. After the action of the emetic shall have entirely ceased, it will still remain for us to prescribe an aperient, which should consist of five grains of calomel and a scruple of jalap, or of half an ounce of spirit of turpentine, exhibited frequently in drachm doses until free purging shall be induced. The author has generally employed turpentine as a purgative, especially in cases of inflammation of the uterus, ever since its introduction into the profession by Dr. Brenan as a remedy for puerperal fever. If the above measures of treatment be employed with adequate activity, very few cases of high-toned hysteritis will fail to be subdued. But unfortunately we sometimes meet, in consequence of want of activity in the beginning of the treatment, with some examples of the same disease of a more subdued character, and under more obscure and anomalous forms. Upon accurate examination of the history

of such cases, they will be found to implicate parts of the vaginal tissues in common with those of the uterus; or else to extend from the parenchyma of the uterus to its lateral appendages, so as to involve the peritoneal coverings of the greater part of the entire uterine system. For the treatment of these forms of the disease the general bleeding should be more moderate, and that by the application of leeches more vigorous, and if necessary more frequently repeated. The bleeding after the removal of the leeches should be followed up by an unremitting and assiduous use of fomentations, and mild but efficient purgatives.

OF PUERPERAL PERITONITIS.—This inflammation of the peritoneum during the puerperal state is one of the most important diseases incident to that period. So simple and uniform as we find it to be in its cause, it is nevertheless productive of a considerable variety of phenomena, as well as of degrees of intensity of the fever with which it is identified, and which is usually denominated puerperal fever. In a small proportion of cases, puerperal peritonitis has been found accompanied by symptoms so mild as almost to admit of the patient's recovery without the interference of art. In other cases, it has been a disease of so violent a nature, as to terminate fatally in the course of a few days after its commencement. But the principal difference by which its varieties are distinguished in different cases, would appear to consist in its character of being either, first a disease of high tone, and secondly, in that of its being a fever of almost the lowest character within the range of our professional experience. Founded upon this diversity of its character in different subjects, some writers have confined their application of the term peritonitis to the sthenic form of the disease, permitting that of puerperal fever to be applied only to the lower-toned variety of it. All the symptoms attendant on the malady would lead to the opinion, that under all its circumstances, it is at least in part, if not wholly, to be imputed to inflammation of the investing membrane of the peritoneal cavity for its proximate cause; while experience has confirmed this inference by inspections, after death, of the parts presumed to be the seat of the inflammation. Thus are we compelled to admit that a disease of great variety of character has one common cause for its origin, and that the diverse forms of the malady, apparently essentially connected with this one original source of its existence, must be founded upon modifications of the inflammatory



action produced by some accessional influence or influences, the nature and specific modes of action of which have not yet been ascertained. We may plausibly enough presume that simple inflammation, unaccompanied by the action of the unknown principle just mentioned, would produce simple peritonitis, a mild disease often admitting of being repressed and subdued by the ordinary treatment of active inflammations; and therefore that the most diversified and dangerous form of peritonitis might require the co-operation of the morbid agency just alluded to, although we are yet totally incompetent to characterize the nature of the morbid principle here referred to, and therefore not at liberty to assert its unity or identity in different circumstances: yet the admission of its existence would appear indispensable to enable us to arrive at any satisfactory theory of the mode, or rather modes, of production of so multifarious a disease. The author has been for many years of opinion that the above principle, whatever other properties it may possess, must really be associated with the power of communicating the disease from subject to subject. Hence, admitting the fact that there are examples of what might be called sporadic cases of puerperal peritonitis, which are not attended with any danger of being communicated to individuals residing in their immediate neighbourhoods, it is equally certain that, in other cases, an experienced eye would be competent to trace symptoms which would be sufficient at once to indicate the presence of a malignant and communicable disease.

In the simpler forms of peritonitis, the disease is ushered in by a rigor of moderate duration and of some severity; which is speedily followed by tenderness of the abdominal surfaces. In some few cases, however, of the disease, even in its less dangerous forms, the shivering is so inconsiderable as to elude the notice of the nurse, and not to present itself strongly to the attention of even the patient herself. In those cases, the symptom usually first complained of, is a soreness of the abdomen, which is not unfrequently discovered rather by accident than on account of the violence of its first attack. It generally, however, increases very rapidly, so as to occasion much suffering, and an indisposition to movements or disturbance of any kind. Soon after, or even identified with, the commencement of the disease is a headache of a peculiar character, which never fails to accompany, and indeed, to form a prominent part of the malady. Of this head-

ache the seat is the *sinciput*, chiefly the part of the forehead at and immediately above the eyebrows. So confined to this locality is the headache in question, that it is usually considered one of the most positive elements of our diagnosis. The author in the course of many years' experience has met with two or three instances of a headache in puerperal fever, which extended to other parts of the head, and even as far as the occiput and nape of the neck inclusive. But these are very uncommon forms of it.

There are always present the ordinary symptoms attendant on the pyrexial state; such as an increase of the temperature of the body, a dry skin, with some degree of difficulty or rather an uneasiness of the function of respiration; the chest not being expanded so fully as during health. In some degree this effect may be imputed to the influence simply of the febrile state, but also and perhaps chiefly it would seem, to the necessity which the patient feels of guarding against the painful pressure of the diaphragm against the inflamed peritoneal surfaces of the abdominal viscera during full breathing. The state of the circulation is found very materially to depend upon the particular type of the fever. When ushered in by a considerable rigor, the pulse during the establishment of the sthenic form of the disease is speedily raised, both in respect to strength and frequency; but if unsubdued by active treatment in the beginning, the rapidity of the circulation increases in geometrical progression; and if left totally unassisted by any efforts of art, the disease proceeds to accumulate from day to day in power and fatality, till it destroys the patient in about ten days, or perhaps something less, from its commencement. This form of the malady, during the earlier days of its existence, exhibits no symptoms so diagnostic of its character as could decidedly lead a mere looker-on to suspect, or at least positively to recognise, its nature. But if suffered to proceed without interference for the first forty-eight hours, it might be expected that its symptoms would present features of its identity which could not easily elude recognition. Whereas, in the low-toned form of the fever, its peculiar features are for the most part cognizable from the commencement, and throughout the whole of its course. In all its varieties, the secretions are usually diminished or greatly vitiated. The state of the skin is generally too dry; although, in some cases of the sthenic form of the malady, it is partially suffused with a

morbid excess of perspiration. In the same form of the disease the whole of the system is considerably raised in temperature, not excepting even the extremities; whereas, in cases of the low-toned fever, it is only the head and trunk of the body that are made subject to any morbid excess of it. The lower extremities, particularly from the knees downwards; the hands, and in many cases the arms, even as far as above the elbows, furnish at the same time the evidence of an excessive coldness, marked by what is commonly called *cutis anserina*. The milk, which is usually secreted in ample quantity on the second or third day after delivery, is either not secreted at all, or is yielded in exceedingly deficient quantity, after the accession of this disease. The urine also, which is produced in very diminished quantity, on being voided, exhibits a deep colour, and soon after deposits a copious lateritious sediment. The lochial discharge, which ought to be abundant during the first four days after delivery, becomes, speedily after the accession of the fever, diminished in quantity, excessively offensive as to its fœtor, and vitiated in all its other qualities. Among the diagnostic symptoms of this disease, we may especially notice the obstinately grave and anxious expression of the countenance; which would seem rather to indicate a physical depression of the spirits from passive suffering, than a state of anxiety arising from any considerations of a moral or sentimental nature. In again adverting to the twofold nature of the malady under consideration, the author takes the liberty of remarking that the low-toned fever, well denominated by the late Dr. John Clarke THE LOW FEVER OF THE PUERPERAL STATE, is the form of it which has most frequently prevailed epidemically in this and most other countries of modern Europe. Of the infectiousness of the disease in the form in question, the author has for many years ceased to entertain any doubt whatever. He has, on many occasions, witnessed its most manifest communication from patient to patient, and even from one district of London to another. It would perhaps be considered improper to furnish facts in detail in corroboration of a principle which has not of late been questioned by competent authorities. All the lying-in hospitals of the metropolis might most easily be made to furnish abundance of evidence on this subject, as well as all similar institutions in the larger towns and cities of Europe. The author cannot speak, with all the precision that he could wish, in respect to the sources of the infecting prin-



ciple. In a district of the Maternity Charity in the Borough, the infecting principle was clearly traced to a case of typhus fever in an old man who had died in St. Saviour's workhouse. During one of the years when the author was obstetric physician to the Queen's Lying-in Hospital, the cause of the infection was carried thither by a female whose husband had died at their common residence, at some distance from that establishment, of a malignant fever. On several different occasions, both in hospital and private practice, the infection was very distinctly traced by the author to cases of acute erysipelas. In one instance he had every reason to believe that the infection of scarlet fever furnished the occasional cause of some of the most malignant cases of puerperal fever that he has ever seen. From what he has observed of the susceptibilities of puerperal women, he feels disposed to believe that their exposure during an early period of the puerperal state to any of the more considerable exanthematous fevers from specific influence, might involve them in all the dangers incident to puerperal peritonitis. When puerperal fever arises from causes admitting of detection, it may be stated, on the experience of the profession, that it proves ordinarily a highly dangerous, if not even a fatal malady.

OF THE APPEARANCES ON DISSECTION.—This scourge of the puerperal state is now pretty unanimously considered to be a fever dependent upon, or at all events inseparable from, a state of inflammation of the peritoneal BLOOD-VESSELS. In consequence of certain suggestions which occurred to him when his attention was specially determined to the subject of the proximate cause of phlegmasia dolens in the year 1817, the author has ever since felt disposed to believe, that the tissue more immediately implicated in peritonitis is that of the ramules of the venous system of the peritoneum and immediate vascular connexions. In the latter years of his connexion with the Queen's Lying-in Hospital, now about fifteen years ago, he had several opportunities of confirming his suspicions on this subject by post-mortem inspections, and in all of those which were made the subjects of minute examination, the venous tissues of the peritoneum and of the lateral appendages of the uterus were found to be either highly inflamed or profusely charged with purulent matter. Such examinations were generally made in the presence of Mr. Chapman, the son of Sir John Chapman of Windsor, and of Mr. Lewis, now assistant surgeon to the Royal Maternity Charity, and a resident of

Bunhill-row, who of course will be competent to confirm the statements here made. In the year 1825, similar opportunities were presented to the author in the practice of his obstetric school, of which the theatre was in Webb-street, Borough: and in order to authenticate his views, he availed himself of the kind services of Mr. Mangles, who for several years had been the assistant of Mr. Langstaff, and who at that time was employed by Mr. Richard Grainger to make preparations for his museum. On inspecting the body of a person who had died of a severe case of puerperal fever, he observed that one of the spermatic veins was greatly distended with purulent matter. Mr. Mangles was requested by the author to remove it, and in his best manner to make a preparation of it, in order to prove the fact of the author's assumption, that the venous tissues of the lateral appendages of the uterus and of the peritoneum generally were proximate seats of the disease called puerperal peritonitis. Mr. Mangles therefore by undertaking this duty, and performing it most satisfactorily, made himself an evidence that such views were expressly entertained by the author in the year 1825. How Dr. Robert Lee could report that the preparation in question, which was civilly shown to him at the University as forming a choice specimen in proof of an important point of pathology, unquestionably FIRST SUGGESTED by the author, was treated by him, the author, with indifference, leaves to that gentleman to explain in the way most satisfactory to himself. Mr. Mangles is still living, but as he resides in the country, the author does not precisely know his present address; but from that circumstance no great inconvenience can arise, inasmuch as upon application, the address will be readily supplied by Mr. Langstaff. The author has from time to time, ever since the date of the above pathological investigation, spoken of it in his lectures, and shown the preparation, now become one of more than ordinary value, to his pupils, with the exception of one unfortunate year, when Dr. Robert Lee honoured him with his attendance, in which, as that gentleman states, he did not show the specimen nor mention it, in his illustrations of puerperal fever. It is not necessary to dispute about a fact of this kind. The author is quite willing to allow it to be decided by an appeal to all the hundreds of students who have attended his prelections in midwifery ever since the year 1825, with the exception of that year alone when Dr. Robert Lee was a member of his class.

Can any gentleman be expected to be very communicative to another who had already shown great eagerness to transfer the humble merit of a pathological notice, first suggested by him, to the ampler stores of another labourer in the same field : reversing however, by such act, the more equalizing system of transfer practised by the celebrated Mr. Robert Hood of furtive memory, who stole from the rich wherewith to give to the poor? See Dr. Robert Lee's paper on Phlegmasia Dolens, Transactions of the Med.-Chir. Soc., vol. xv. p. 132.

OF THE TREATMENT OF PUERPERAL PERITONITIS.—The essence of this disease under all its forms being indicative of an inflammatory source, it would seem plausible that its most suitable treatment should be by depletion. Accordingly, since the disease has been in any degree investigated pathologically, from the time of Dr. Hulme to the present period, the practice by bleeding has been occasionally and under certain circumstances resorted to. Inasmuch, however, as the phlogosis of peritonitis has more or less constantly been associated with a remarkable prostration of the powers of life, it is not many years since bleeding on an adequate scale has been employed as a remedy for puerperal peritonitis. For the introduction of this practice on intelligible principles and on a scale calculated to meet the magnitude of the evil, the profession is indebted to the late Dr. Gordon of Aberdeen, whose essay upon this subject will be found to contain the elements of all the effective practice which, without sufficient reference to Dr. Gordon, has since in more than one instance been much too vauntingly recommended by his less meritorious imitators. If to the practice of bleeding as recommended by Dr. Gordon we add that of bleeding in the cold stage more recently urged by Dr. Mackintosh of Edinburgh, we embody nearly all that is valuable on the subject of this part of the treatment in a small compass. In all sporadic cases of the disease, and in a certain inconsiderable proportion of cases under its less favourable forms, as it usually appears in hospitals and in the more wretched abodes of the poorer classes of the population, an ample bleeding at the commencement of the disease might not very unreasonably be expected to effect a speedy solution of it; which indeed in such cases we find actually to correspond with professional experience. But much of the utility of bleeding must depend on the time of its adoption, and on the manner of performing the operation. If we suppose



the patient to be bled while in the cold stage, and in adequate quantity, to produce a decided impression upon the circulation, such a depletion might probably suffice AT ONCE to effect the subduction of the morbid action. And although the disordered actions were such as in other cases might be legitimately called the hot stage of fever, still if we suppose the lancet to be resorted to WITHIN six or eight hours of the commencement of the disease, the anticipation of much good to be obtained from such practice would be by no means an unreasonable one. The measure of the adequacy here supposed, must obviously have reference to the quantity of blood abstracted, and to the constitutional effects produced by the bleeding. Complete fainting is one of its most favourable results, as well as a measure of its utility ; and that state cannot ordinarily be expected to be produced in an adult subject of almost any fever, at a less expense of blood abstracted than would amount to between twenty and thirty ounces. Such an average might therefore serve as a standard of approximation to the measure which it would be right to take during the first bleeding. If the patient by this operation should completely faint, it might be expected that she would derive important advantages from it ; whereas, on the contrary, if we suppose the fainting to be imperfect, the pain of the abdomen to remain unmitigated, and the other characteristic symptoms not to have been materially relieved by it ; the pulse to be accelerated or even to be disposed to resume its previous rhythm ; such circumstances would subduct from the probability of its efficiency, so far at least as completely and at once to answer the purposes of its institution. When bleeding has the effect not only of mitigating, but of entirely removing the abdominal tenderness, we may reasonably hope that it will ensure us an early triumph over the morbid phenomena of the case. The utility of bleeding, as has been already intimated, is more decidedly observable in the sthenic form of the disease ; whereas, on the contrary, the author has to lament that he has seen very many examples of its failure in hospital practice, where it had been had recourse to tentatively, more as a merely possible than a probable means of relief, in cases of the disease under its asthenic form.

A first bleeding producing valuable effects in greatly abating pain and subduing arterial excitement, but nevertheless proving insufficient to produce an entire solution of the febrile action,

may often be repeated with great advantage, and its principle still further acted upon very beneficially, by the application of leeches to the hypogastrium, and the abdominal surfaces generally. The bleeding from the leeches may be considerably promoted by fomentation ; which of themselves would be calculated to afford great relief to some of the most important of the patient's symptoms.

After a sufficient bleeding shall have been thus premised, much good may often be obtained by the exhibition of an active emetic.

Subsequently to the action of the emetic the bowels should be once well purged by a dose of castor-oil, followed up by a demulcent enema. In the event of failure of a full and ample bleeding to effect a decided reduction of the febrile frequency of the pulse, the author feels himself authorised to recommend strongly, with a view to the ultimate accomplishment of the same object, the exhibition, in regulated quantities, of DIGITALIS. Digitalis, in the quantity of about five-and-thirty grains of the powder, would doubtless in time effect an adequate reduction of the heart's action. But this quantity cannot be safely given in less time than fifty or sixty hours. The author, therefore, has been in the habit of prescribing it in the quantity of two grains with an equal quantity of the blue pill, to be given every three hours until the pulse shall be reduced to its natural standard of seventy or eighty strokes in the minute. Digitalis thus exhibited may be safely recommended as a powerful auxiliary to the lancet.

Mercurial preparations have not unfrequently been exhibited as medicines of great importance in the treatment of the disease under present consideration ; and if they could be exhibited in forms which might be depended upon for producing their specific effects sufficiently early in its development, they would no doubt exert a most salutary influence in arresting its progress.

Calomel and opium, in combination and in large doses of both ingredients, have been the form in which the author has most frequently exhibited mercurial remedies in puerperal fever ; and he has the pleasure of adding, that he has occasionally attained his object completely by their administration. Most frequently, however, he has failed, by not being able sufficiently early in the disease to produce any degree of ptyalism ; it being indeed the fact that in the greater number of cases, the absorbents appear to be thrown into a state of effectual paralysis by the malady.

As to the use of turpentine, the author cannot say that he has

had sufficient experience to enable him to speak strongly of its utility. When Dr. Brennan honoured him with his first account of it as a remedy for puerperal fever, it happened that the disease was very rife and fatal in all the wards of the Queen's Lying-in Hospital, to which he was then officially attached. He was therefore naturally induced to make trial of it in all the cases and forms of the disease which he had under his care at that time in the hospital. He was never more completely disappointed in the use of a new remedy strongly recommended, than he was on that occasion, in the whole course of his practice. But in fact he is acquainted with no remedial agent whatever, on which he could rely for the exertion of any considerable power, in warding off the event which must be anticipated, in almost all cases of the disease, when presented under the form of THE LOW FEVER OF THE PUERPERAL STATE.

OF EPHEMERA OF THE PUERPERAL STATE.—This fever, as its name implies, consists in the accession of pyrexial symptoms which may occupy only one day ; or which, if repeated, will present themselves in an exasperated form during successive periods of between twenty and forty hours. The subjects of ephemera are usually very languid convalescents, from the ordinary incidents of labour and its immediate consequences. The symptoms are sometimes so strongly characterized as to lead to the suspicion of an intense inflammation, or at least of a high-toned inflammatory fever : but the malady has so seldom, if ever, proved fatal in its simple state, that we have scarcely the evidence of pathology to identify its absolute nature. It generally comes on some days after delivery, the patient in the mean time performing the duties of lactation and the other functions of the puerperal period very languidly and imperfectly. Its premonitory symptoms are, a frequent pulse, a sense of general uneasiness without being able to refer to any distinct pain either of an organ or of any particular region, a slightly furred and whitish tongue, depression of spirits, and no appetite for food. In the midst of these circumstances, the first paroxysm commences with a rigor frequently of great violence and long duration ; but sometimes with a quick succession of smaller chills. Each of these forms of what we may call the cold stage of this fever is followed by a hot stage of extraordinary activity. From a pulse of so much feebleness as scarcely to be felt during the previous cold stage, it rapidly rises during the development of the febrile



action, so as to emulate, in the measure of its excitement, inflammatory fevers of the greatest intensity. Its increment of frequency also, from a hundred or a hundred and ten, which had marked the feeble state of health of the patient previously, to a hundred and sixty, is found at the same time to indicate the intensity of the hot stage, and especially to characterize the malady. The hot stage is followed as in intermittent fever by a profuse perspiration, which continues uncertain in different subjects for four, five, or six hours. During the whole of this stage of the paroxysm, the pulse is found to subside gradually to its former rhythm of from one hundred to a hundred and twenty strokes in a minute, and to its former languor and want of volume, such as it was before the commencement of the attack. When twelve or fifteen hours shall have been thus occupied, the patient may be expected to recover her previous state of languid convalescence. But the first paroxysm, such as has been now described, may be followed by another, or even by an uncertain number of similar accessions; which in fact would constitute an irregularly intermittent fever, the irregularity principally consisting in the unequal duration of the intervals between the paroxysms.

The foregoing description applies with more correctness to those more violent febrile accessions which have been called EPHEMERA of the puerperal state; although it might be difficult to find a better designation to characterise diurnal feverish movements of a very inferior tone during the same period, but still very sufficient to interfere with the due progress of the patient's recovery. The different stages of these minor accessions are less violent and of shorter continuance. The pains which accompany the other symptoms of a paroxysm of ephemera, although expressly complained of in most cases, are probably nevertheless not so intense as those which are sustained during a fit of common ague. Their analogy in other respects is tolerably well marked; inasmuch as they are observed to occupy sometimes the head and nape of the neck, but most frequently the loins and back. The temperature during the hot stage as usually indicated by Fahrenheit's thermometer is scarcely ever under 105°. Although the perspiration which follows the hot stage of this disease is ordinarily exceedingly profuse, the author has never met with an example of its being attended with a miliary eruption on the surface of the body. The fever seems sometimes to be of a character to admit

of mitigation, if not of entire removal, after the train of symptoms constituting its first paroxysm shall have been gone through; notwithstanding that the patient should be considered as being generally left by it in a state of great susceptibility to relapse.

The author must confess that he has no knowledge of the proximate cause of puerperal ephemera; and moreover that he must undertake the consideration of its TREATMENT with great diffidence. From the high-toned symptoms which in the greater number of cases he has observed to characterize the second stage of the disease, he has been occasionally induced to try the effect of free venesection; without however at any time satisfying himself that he has derived any decided advantage from the practice; but on the other hand, without being convinced that the interests of his patients were seriously injured by it. Upon the whole he should not, from his experience, feel himself warranted in earnestly recommending that method of treatment. The local pains which are complained of during the paroxysm, such as those about the back of the head, nape of the neck, and more frequently the loins and hypogastrium, usually subside with the gradual decline of the pyrexial symptoms, so as to leave after its recession no indication for the use of blisters or of any other active topical remedies.

The author has usually exhibited blue pill in quantities of about ten grains daily, with a view more especially of improving the gastric functions, but of course with no hope of being able immediately to subdue by its alterative properties the more intense and characteristic symptoms of the disease. For the attainment of the latter object, he has of late years exhibited opium in various forms, and generally in doses sufficient to produce the narcotic effect of the remedy pretty strongly; as in quantities of two grains of the pure extract, or in sixty or seventy drops of Battley's liquor for a dose. After the complete recession of a paroxysm, he has accordingly endeavoured to place his patient under the full influence of opium, and recommended the repetition of the same doses every four or six hours until it might be fairly calculated that the time for the accession of the succeeding paroxysm was gone by. He has thus in some cases kept his patients under the full influence of opium for some days, and thus, AS HE HAS REALLY BELIEVED, in the end enabled himself completely to subdue the disease. In the LESS strongly developed forms of the malady, he has however had reason to suppose that

the treatment by the exhibition of large doses of opium has been less positively successful. When the disease occurs after the lapse of several weeks subsequently to the confinement, or is prolonged to the same period by a continued succession of paroxysms, he has generally found great advantage from recommending a change of residence; which accordingly in his own practice has been from London to one of its most salubrious neighbourhoods. Upon the whole, however, he must acknowledge his incompetency in a large proportion of cases to ascertain the nature and causes of the disease, or satisfactorily and with confidence to direct its treatment. It is said to have sometimes terminated fatally, by the induction either of dropsical effusions into the thoracic or abdominal cavities, or otherwise by laying the foundation of diverse forms of chronic disease. In his own practice, however, he has never met with a single example of a fatal issue of it, either directly or indirectly.

OF PUERPERAL INTERMITTENT FEVER.—This disease is to be distinguished from ephomera by the fact of its being always, as the author believes, accompanied and followed by severe inflammation and suppuration of membrano-tendinous tissues. The author was some years ago concerned in the treatment of a case which, from the circumstances reported of the previous labour, had probably been unnecessarily exposed to operative treatment. The forceps were kept in application for SEVERAL HOURS, during which period they were from time to time violently adducted. The birth of a still-born child was at length the result of this operation. The mother moreover became the subject of intermittent puerperal fever on the subsequent day; when she was seized with the most violent shivering fit that the author ever witnessed. The cold stage was followed by the utmost intensity of the ordinary symptoms of the hot stage, producing what might ALMOST LITERALLY have been called a burning fever; whilst the third or sweating stage bore a striking resemblance to the analogous period of the common ague of marshy countries. After the recession of the febrile symptoms for about fifteen hours, a second paroxysm commenced with a rigor of equal severity with that which introduced the disease, and of at least an hour and a half's duration. This paroxysm went round the entire circle of its phenomena like the preceding; and was afterwards succeeded by similar paroxysms at intervals of from fifteen to thirty hours, for a period of upwards of six weeks, when the inexorable malady



destroyed its unfortunate victim. The body was inspected after death. The perineum was found to have been torn during the labour, and consequently shortened about half an inch. But in other respects, the parts about the external orifice were in a perfectly sound state. The uterus had contracted to its ordinarily unimpregnated size, and upon making an incision through its anterior wall, its tissue presented every appearance of health. Guided by a slight appearance of vascular fulness of the surfaces of a part of the intestinal tube, in the neighbourhood of the right ovary, the body of the womb was brought forward into a more distinct view; when the ovarian pinion of the broad ligament of the same side was found greatly enlarged, and distended with what was distinctly felt to be a fluid. The size of this cyst was at least equal to that of a large hen's egg, and upon cutting into it, it was ascertained to be charged with about an ounce and a half, or possibly two ounces, of laudable and strongly concocted purulent matter. The cyst was everywhere so entire in its texture as to present no appearance of probability that it might at any early period have spontaneously given way.

On reporting the result of the above case to the late Dr. Babington, that gentleman assured the author that he had some years previously been a party to the inspection of a subject who had sustained precisely the same symptoms during life, and had died from what was ascertained to have been inflammation and suppuration of the same tissue. The encysted matter in both cases was deep-seated and inclosed within the peritoneal covering of the ovarian ligament. In all possible respects, therefore, the two cases presented a perfect identity of circumstances.

A poor woman was for several weeks the subject of an intermittent fever, similar in almost all its phenomena to those of the two preceding cases. She died, and a post-mortem examination was permitted. After the removal of the abdominal integuments an evidence of considerable disease manifested itself in the neighbourhood of the left ovary, where there was found, upon laying aside the viscera which concealed the diseased parts, a pretty extensive abscess, containing very offensive purulent matter, together with the remains of once organised tissues, which had the appearance of having been broken down by the suppurative process. All the lateral appendages on that side of the uterus appeared to have been implicated in the disease.

The author could mention at least two other cases bearing a

strong analogy both in respect to their symptoms and final results to those of the subjects of the above narratives, but enough has been already said to determine the attention of pathologists to the supposed proximate cause of the malady. The only inference that could be made from the above cases, with a view to a future more successful prophylactic treatment, would seem to be the importance of a rigorously depleting practice during the urgency of such severe labours as might be likely to lead to the production of a disease of this kind.

OF THE IRRITATIVE FEVER OF THE PUERPERAL STATE.—The author has ventured to give this designation to a febrile disease of the puerperal state, of which the following are the principal attributes:—1. An excited state of the heart and arteries for an uncertain period before the accession of labour. 2. An unusual apprehension of danger, or rather the confident belief of an approaching fatal event, also entertained for an uncertain period of several weeks before the declaration of the process of parturition. 3. An obstinate continuance of the same symptoms, both during labour and subsequently to that result. 4. Proofs of much morbid determination of blood to the head both before and after delivery; but without delirium. 5. Perfect vigilance. 6. A disease of about eight or ten days' duration subsequently to the delivery; but with full possession of the intellectual powers throughout the whole course of the malady. 7. A fatal termination, with rare, if with any, exceptions.

In respect to the treatment of a disease of so formidable a character, it is obvious that nothing very satisfactory can be offered. The author has seen it treated in some cases with great vigour; and in others in the most passive manner, as well as on principles which seemed to suggest intermediate measures, which were accordingly resorted to; but in all, excepting in one instance, of which he had some doubt as to the accuracy of his diagnosis, the event proved unfavourable. On inspection of the subject after death, he discovered, in several cases, a state of the encephalon similar to what is found in fatal cases of hydrocephalus, consisting in a great moisture of the meninges and other surfaces of the brain, and in effusion of profuse quantities of limpid fluid into the ventricles and theca spinalis. On one occasion, some years ago, he intrusted a post-mortem examination of a case of this kind to the late Mr. Taunton of Hatton Garden, when that able anatomist reported that he examined

the whole of the subject carefully, the head inclusive ; but that he had not been able to discover any traces of disease in any of its viscera or cavities.

OF PUERPERAL PHRENITIS.---This malady presents itself for the most part within twenty-four hours after the birth of the child. The patient seldom enjoys any sleep during the first night after her delivery ; but as it frequently happens that this period is, in ordinary circumstances, one of comparative restlessness, the incident is often overlooked ; and if the practitioner should not take pains on the following day to ascertain the precise particulars of his case, the very dangerous state of his patient may escape detection for a period of fifteen or twenty additional hours, when it will have become too late to rectify the fatal error. The fact, perhaps, most deserving of notice in the first instance, is the perfect non-subsidence of the fever of labour. That, and its never-failing accompaniment, the total vigilance during the first night after delivery, should determine the practitioner's earliest attention to the state of the head. On examining the temperature of the head, it would be found to range considerably above the natural heat of the living body in its ordinarily healthy state, and probably above that of all other parts of the patient's person. With those symptoms would be connected, an excited state of the heart and arteries, and such a velociousness of the pulse as we rarely have an opportunity of observing in other febrile diseases. The tongue is usually observed to be very free from fur and foulness of every sort. The eye presents a strong expression of cheerfulness and confidence ; and if the patient be interrogated as to the state of her feelings, she immediately answers that she is quite well in all possible respects, and often conveys an idea of the great surprise, if not displeasure, which she feels that her medical or other attendants should entertain any doubt of the perfect prosperousness of her recovery. The secretions are interrupted and almost absolutely suppressed during the existence of the malady. The lochial secretion is speedily suspended ; and that of the milk is not instituted. The skin, especially that of the face, presents a polished dryness ; nor is that of any part of the body suffused by the breathing moisture which naturally accompanies the earlier days of a happy convalescence after delivery. The action of the kidneys is also almost entirely suppressed.

The high-toned actions of the body become associated in the



progress of the disease with various extravagancies of the mind; the patient becoming at length the subject of outrageous delirium, which scarcely ever subsides excepting with or on the immediate approach of death. Some three or four hours before the occurrence of the fatal event, the brilliant features of the frenzy are suddenly altered, so as to fall and shrink into an expression of a most commiserable fatuity, accompanied by a pulse tremulous, feeble, and extremely frequent. This disease may often be successfully treated by ample bleeding at its commencement, and followed up by the other measures usually considered proper for the subduction of very active diseases; by the use of cooling applications to the whole of the naked scalp; and by the exhibition of full doses of calomel and jalap. The author wishes to lay great stress upon the reduction of the temperature of the head by the operation of certain cooling measures which have already been repeatedly and strongly recommended for the subduction of violent cephalic symptoms, in the course of the present undertaking.

OF PUERPERAL INSANITY. — Allied to puerperal phrenitis, is the disease which has sometimes been called mania lactea, or puerperal insanity. Both these designations of the malady are equally objectionable, as neither can be considered applicable in all cases. For the sort of insanity which most frequently takes place in the puerperal state is occasionally known to occur at periods of considerable distance subsequently to it; and when on the contrary it is observed to supervene within the period of a single month, and sometimes of one or two days after delivery, it would appear very doubtful how far it should be attributed to any disturbance or derangement of the function of lactation. The actual explosion of this form of aberration of mind is often ascribable to the influence of causes merely accidental concurring with a strong predisposition of the subject to morbid impressions during the puerperal state. It seems almost always to supervene during a languid state of the general health, accompanied by a slightly-excited condition of the heart and arteries. The patient, for the most part, complains of being indisposed, or of not being perfectly well; without, however, sustaining any ailment which she could embody into a substantial ground of complaint. She will be found to have recently slept imperfectly, and in insufficient quantity to refresh her exhausted powers. This state of imperfect sleep gradually advances to that of more

or less perfect vigilance; until at length it is ascertained that the function has become totally suspended. In the mean time her spirits are observed to be unusually depressed, and her temper unusually peevish and irritable. In the progress of the malady some supposed cause of discontent is magnified into a source of much unhappiness, or of continuous vexation and of querulous loquaciousness. After the total cessation of the power of sleeping, a partial alienation of the reasoning faculty takes place, and gradually extends its influence from the primary perversion to other subjects, until at length the whole chain of the power of association becomes disrupted. The pulse is found usually more frequent than natural, but generally, nevertheless, of a subdued character with respect to strength. It is often represented as a weak pulse; although there is about it a quickness and an obstinacy which make it not easily compressible. Its character upon the whole is such as unfortunately too frequently leads to the adoption of inert practice. With this state of the circulation we frequently find associated a temperature of the body scarcely raised above that of blood-heat during health. But to this condition we should mention an exception either of all or of some part of the head, whilst, however, this partial temperature is scarcely ever raised more than one or two degrees above that of other parts of the body. During the earlier days, or possibly for the first week or two of the disease, the alienation is confined to the original object of morbid contemplation; but as the malady proceeds and becomes established, there is not unfrequently an entire abolition, or at least a very extensive diminution, of power of all the attributes of the understanding. In other words, the patient becomes perfectly insane.

OF THE TREATMENT OF PUERPERAL INSANITY.—In the greater number of cases of mental alienation during the puerperal state, which have occurred within the experience of the author, the disorder appeared identified with, if not actually depending upon, an obscure departure from a perfectly healthy state of the circulation in the vessels of the brain and its meninges. This was proved by an inconsiderable acceleration of the pulse, as has been already stated by an observable increment of power in the pulsation of the temporal arteries, and by the fact which constitutes probably the principal occasional cause of the disease, namely, that of obstinate vigilance, which is, at all events, an unfailing accompaniment of it. If this view of the circumstances

involving the invasion of puerperal insanity be correct, it would naturally suggest the means which experience has proved to be best calculated to obtain an early cure of it. These consist in two or three principal measures, namely, 1st, in tolerably ample bleeding, both general and topical; 2nd, in an adequate subduction of the increased temperature of the head; and 3rdly, in the exhibition of an active emetic, and afterwards of a purgative, consisting of calomel and jalap, in the dose of five grains of the one, and a scruple of the other. Bleeding by the arm might, perhaps, be omitted in favour of a more ample abstraction of blood from the temporal arteries, or from the prominent surfaces immediately behind the ears, by cupping. Those measures having all been crowded into a short space of time, the patient should then, as speedily as possible, be placed under the influence of full and repeated doses of opium. The author begs to observe, that this brief account of his own practice embodies, in point of fact, a system of treatment of puerperal insanity which has very rarely failed to restore the patient to perfect possession of her reason in the course of a very few days. It, however, should be considered calculated to produce the effect here represented, only when adopted very speedily subsequently to the commencement of the malady. After the disorder shall have become established, it of course must soon be expected to assume the chronic character, and to become subject to the laws of chronic diseases. The bleeding, which should not be very sparing, nor on the other hand very profuse, is especially suggested as a measure of preparation and security for the exhibition of opium upon a large scale. Until the important object of inducing sleep shall have been attained, the case will furnish no ground for any substantial hope of an early recovery. After the bleeding shall have been premised, and the patient's head shall have been shaved and laid upon a pillow of iced water, prepared as the reader will find described in a foregoing page of this work, a dose of calomel and opium, consisting of ten grains of the one and two or three of the other, should be exhibited without loss of time; after which, draughts consisting of camphor mixture, liquor ammoniæ acetatis, and mint or cinnamon water, of about half an ounce each, together with sixty drops, or eighty, or a hundred, according to the supposed demands of the case, of the tincture or of Battley's liquor of opium, should be successively adminis-



tered every two, three, or four hours, according to the urgency of the symptoms. If after the lapse of a few hours, the patient should unfortunately sleep under this treatment, the circumstance should be made available for urging the same course of practice with great decision and regularity. After first waking from even a disturbed sleep, thus forcibly induced, another measure of the opiate should be exhibited, without too nice a reference to the hour when it had been last administered. The author has, in very many cases of the disorder, exhibited this potent and admirably-efficient medicine, in quantities of from four to six drachms of the liquor in divided portions in the course of six or eight hours, with the best effects; and those effects have been so prompt and decisive as to be attended with scarcely any one exception of failure. Whilst this practice is placed under the care of a competent person to carry its application into full operation, another attendant, similarly endowed with ability and with a commanding influence over the patient, should be intrusted with the duty of regulating the temperature of the head, and with that of administering the other medicines prescribed. The ordinary attendants judiciously appointed, should be instructed to be discreet and firm, but at the same time mild and soothing, in the moral management of their charge. If the patient should be of a temper to make attempts at resistance, and to refuse compliance with the reasonable wishes of her medical attendant, a firm determination on the part of her husband, or other most influential friend or friends to see those wishes complied with, must be exerted in such a way as not to fail to impress her mind with a conviction of the absolute expediency of submission. Lest the reader might not be able easily to refer to certain statements which the author has more than once suggested, on the value of calomel and jalap as a purgative remedy in cephalic diseases, he would beg here to repeat, that this combination of two excellent aperients has often appeared to him to produce incomparably better effects than any other medicines or combinations of medicines of the same class, when prescribed for such affections. If the precious opportunity of the first two or three days of the disease be allowed to pass without being made available for the adoption of the above remedial measures, the melancholy disorder will most probably extend its influence beyond the limits within which an early restoration to health could be reasonably expected. In that event,

the case must be surrendered to those arrangements which worldly circumstances, and the influence of the kindest family affections, may best suggest for the eventual restoration of the patient, now become the subject of a chronic malady, to the happy state of a full repossession of a sound mind in a sound body.

OF PHLEGMASIA DOLENS, OR THE SWELLED LEG OF THE PUERPERAL STATE.—The proximate cause of this malady was not known till the year 1817, when it was for the first time recognised in the practice of the obstetric school then under the superintendence of the author. Mrs. Caroline Dunn, aged twenty-one, a poor woman, under the care of Mr. Hunt, one of the pupils of the school just named, and now a resident practitioner at Bath, sustained a profuse discharge of blood both before and after the birth of the child. On the following day she became the subject of febrile symptoms, as described in the history of the case on its first publication. The patient died. It had been for some years an object with the author to arrive at an accurate knowledge of the pathology, or, in other words, of the proximate cause of phlegmasia dolens, and he was therefore induced to solicit the services of some competent anatomist to assist him in the inspection of the parts. Mr. Lawrence, surgeon to St. Bartholomew's Hospital, kindly accepted the charge, and on the day after but one sent the author a letter in which he gave an ample description of what he saw. Of that letter the following is an extract. The whole of the manuscript is in existence, and can be perused by any professional gentleman who may be interested in such inquiries.

“Appearances observed on examining the body of Caroline Dunn, on the 6th of March 1817, in the presence of Dr. Davis.”

“The left lower extremity presented a uniform œdematous enlargement, without any external discoloration, from the hip to the foot. This was found, on further examination, to proceed from the ordinary anasarcaous effusion into the cellular substance. The inguinal glands were a little enlarged, as they usually are in a dropsical limb, but pale-coloured, and free from the slightest sign of inflammation. The femoral vein, from the ham upwards, the external iliac and the common iliac veins, as far as the junction of the latter, with the corresponding trunk of the right side, were distended and firmly plugged with what appeared externally a coagulum of blood. The femoral portion of the vein, slightly

thickened in its coats, and of a deep red colour, was filled with a firm bloody coagulum adhering to the sides of the tube, so that it could not be drawn out. As the red colour of the vein might have been caused by the red clot everywhere in close contact with it, it cannot be deemed a proof of inflammation. The trunk of the profunda was distended in the same way as that of the femoral vein; but the saphena and its branches were empty and healthy. The substance filling the external iliac and common iliac portions of the vein was like the laminated coagulum of an aneurismal sac, at least with a very slight mixture of red particles; the tube was completely obstructed by this matter, more intimately connected to its surface than in the femoral vein; adhering indeed as firmly as the coagulum does to any part of an old aneurismal sac; but in its centre there was a cavity containing about a teaspoonful of a thick fluid of the consistence of pus, of a light-brownish tint and pultaceous appearance. The uterus,—which had contracted to the usual degree at such a distance of time from the delivery,—its appendages and bloodvessels, and the vagina, were in a perfectly natural state. There was not the least appearance of vascular congestion about the organ, nor the slightest distention of any of its vessels. Its whole substance was, on the contrary, pale, and the vessels everywhere contracted and empty. The state of the abdominal cavity and its contents was perfectly natural. That the substance occupying the upper part of the venous trunk, and the fluid in its central cavity, had been deposited there during life, from inflammation of the vessel, does not admit of doubt. I am also decidedly of opinion, in consequence of its firmness and close adhesion to the vein, that the red coagulum in the femoral vein was the result of a similar affection extending along the tube; and that the passage of the blood through it, in the whole tract submitted to examination, must have been completely obstructed before death.

“WM. LAWRENCE.

“College of Physicians.”

The above case, after exciting considerable interest among the author's pupils and their immediate friends at the time of its occurrence, was made the subject of a public debate or conversation at the Bartholomew Society in the spring of the same year.

This fact was stated in a paper on the subject published in the 12th volume of the *Medico-Chirurgical Transactions*, page 419, on the authority of Mr. Hunt and other medical students of the



period in question, and the author has no doubt that it is a matter even now of perfectly distinct recollection with many gentlemen who were then and may be still in the habit of paying occasional visits to that justly celebrated hospital. In the essay just referred to, the author appended, for the illustration of his theory of the proximate cause of phlegmasia dolens, three other cases which had occurred within the period intermediate between the date of Mr. Lawrence's letter and that of the essay just referred to, for the purpose of sustaining the same pathology of the disease. Of these, one was that of a very young married lady, who died suddenly in the midst of high and perfect health, on the 20th of September 1819, in the sixth week after her second puerperal confinement. She had been the subject, during the earlier weeks after her delivery, of phlegmasia dolens. On examination of the body after death, the external iliac vein, including a portion of its corresponding femoral vein, was found strongly attached, by adhesions of its cellular coat, to the parts forming its natural bed. Its parietes still retained a morbid thickness, and its internal tunic was studded in several places with deposits of adherent lymph. The tube of the vessel was left manifestly pervious, although it had suffered a diminution of capacity amounting to about one-half of its natural diameter. The inguinal glands were not diseased. The dissection was performed by the late Mr. Taunton of Hatton Garden, in the presence of Messrs. John Taunton junior and Mr. George Anderson of Hatton Garden. The preparation in illustration of the facts now stated, is to be seen in the Museum of Anatomy of University College. Whilst preparing the paper already referred to, soon afterwards published in the *Medico-Chirurgical Transactions*, the author was honoured by a communication from his friend Mr. Oldknow of Nottingham, in which was given the following case of phlegmasia dolens, which had occurred about two years previously in that gentleman's practice.

"Jane Elliott was delivered in September 1820, after an easy and natural labour. On the 20th day after the delivery she was seized with a violent purging, for which astringents were given with success; but the pulse continued quick, and she had considerable fever. On the 30th day the fever returned, and the left lower extremity became swollen and painful, with considerable increase of fever. She died on the 34th day."

"DISSECTION.—On examining the swollen limb on the day

after her death, I found the femoral vein, one third down the thigh, and all the iliac veins much enlarged, and containing adherent layers of coagulated blood, similar to that found in aneurismal sacs, together with a sort of grumous fluid of a brown colour, more or less mixed with air, and almost obliterating the venous canals. The same appearances, but in a much less degree, extended along the cava as far as the entrance of the renal veins. The coats of the veins were highly inflamed, and intimately attached to the surrounding parts. The absorbent vessels and glands were slightly enlarged as high as the lumbar regions, but not otherwise affected. The uterus had regained nearly its natural size.—H. OLDKNOW.”

Mrs. L., a lady of a delicate constitution and of a very irritable habit, was delivered of her fifth child in July 1821. She had been subject to feverish affections in several of her former confinements. On this occasion she recovered well till the seventh day after her delivery, when she was taken out of bed and placed on a sofa exposed to a current of cold air. In this situation she was seized with a violent rigor, which was speedily succeeded by a pain in the left side of the chest, which increased rapidly in intensity, but which, in consequence of bleeding and the application of a blister, was in a great measure subdued; an advantage which, however, was not accompanied by any material reduction of the attendant fever. Concurrently with this affection of the chest, the usual symptoms of phlegmasia dolens manifested themselves. The patient died on the 25th day after her delivery.—DISSECTION. The pleura costalis of the left thoracic cavity was found slightly inflamed, and lined in two or three places with a delicate tunic of lymph; there was also an effusion of about six ounces of a transparent fluid into the cavity itself. The lung of the same side was of a dark red hue. The heart and pericardium presented no appearances of disease. The right cavity of the chest and its contents were also healthy. All the surfaces and viscera of the abdomen, moreover, were apparently in a perfectly sound state. The left lower extremity, from the hip to the toe, was considerably, but not greatly, enlarged; and there was an evident fulness of the labium pudendi of the same side. Both iliac veins were unusually turgid with blood; but presenting no other external manifestation of disease. They were entirely free from attachments to contiguous parts. The inguinal glands were certainly not diseased, nor even visibly enlarged. On making a

careful incision into the left external iliac, it was found to contain a coagulum of blood of firm consistence; but not at that part adherent to the internal surface of the vein. Upon examining, however, the common iliac portion of the vessel, adhesion of the same column of coagulum had obviously taken place. This fact may be now easily recognised on inspecting the preparation of the part, which may be seen among other pathological illustrations of the same subject, in the medical museum of University College. The left internal iliac was greatly inflamed; and its diameter was so much contracted by the morbid thickening of its parietes that it was rendered almost impervious. The right iliac vein, including both its common and external portions, was distended by a similar coagulum; or rather, the same column of coagulum was prolonged over the angle of their common junction with the vena cava from one iliac to the other.

The above four cases furnished the materials and formed the basis of the author's theory of the proximate cause of phlegmasia dolens, as it was afterwards published in his paper on the subject in 1823. The doctrine was propounded in his obstetric school from the date of the first important case of Mrs. Caroline Dunn. From that period till the year 1835 inclusive, he has never failed to state his opinion, nor to exhibit the preparations illustrative of the facts on which he founded it, to a pretty numerous auditory of students, at least twice every year. The doctrine thus unceasingly and publicly espoused by him on so many different occasions, was as well known in all the medical schools of London in the years 1818, 1819, and 1820, as it has since been to all well-informed pathologists in Europe. The author believes, at the present moment, that the truth of it was completely established at least for six years, before it was presented for admission into the Medico-Chirurgical Society's Transactions; and such had been the state of knowledge of the profession in London on the subject of phlegmasia dolens for not less than eleven years, when Dr. Robert Lee published his first contribution to the pathology of the same disease in the 15th volume of the same Transactions, in which that gentleman chose to assign to the author a secondary and subordinate station amongst modern contributors towards the elucidation of the subject; giving M. Bouillaud, by something more than implication, the merit of being the first to identify the inflammation and suppuration of the iliac veins, with the proximate cause of the swelled leg of the



puerperal state ; whilst, at the same time, he must have known, and did know, if he had ever read Mr. Lawrence's letter, that the author had irreversibly established his title to it in the year 1817. It would appear quite unnecessary, at present, to make a single observation upon another paper of Dr. Robert Lee on the same subject.

The treatment of phlegmasia dolens which the author proposed in the above paper, has for some time become the established practice for its subduction amongst the profession in this country. Reasons were given in that essay why general bleeding should be considered as contra-indicated, of which it is now necessary only to notice very briefly the most important ; namely, that a great part of the blood of the entire system during an advanced stage of phlegmasia dolens is locked up in the swelled leg, and therefore in a great measure rendered unavailable to the general purposes of the circulation.

This fact makes it necessary that all sanguineous depletion must be made from the neighbourhood of the primarily inflamed tissue ; and experience proves that the proper mode of abstracting the blood topically for the particular object in view is by the application of an adequate number of leeches to the groin, inside of the thigh, or other surfaces of the iliac region and limb affected, as the particular case may indicate. The leeches should be applied in the number of from twenty to thirty, according to the degree of pain, the amount of the general phlogosis, and the stage of the disease. When this indication shall have been sufficiently fulfilled, and the surfaces so treated shall have become dry after the bleeding, some principal tracts of the parts in question should be extensively covered with blisters, which will scarcely ever fail to promote most perceptibly the general intention of the treatment. In the mean time it will of course be required of the practitioner to secure for all the functions implicated the most healthful state to be obtained by the exhibition of suitable medicinal agents.

## OF THE DISEASES OF CHILDREN.

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IN the present section of our undertaking, the author has to bring under consideration the phenomena of disease as they are exhibited in infancy and childhood. It is a popular but not altogether a correct notion, that all the affections of infants and young children are but modified forms of diseases incident to maturer stages of life. In certain cases we observe, no doubt, striking analogies amongst diseases of all periods of life; as we may especially observe in the divers forms of inflammatory action, and also in different kinds of organic changes and degenerations. Where much of the structure of the frame, and also a great proportion of its functional processes, are so different in infants from those of adult age, it cannot be reasonably maintained that there are no peculiarities incident to their diseases. So far indeed is this from being true, that some small proportion of the present division of our work will be occupied by descriptions and examinations of parts and functions especially appertaining to early periods of life, with a view to a more practical examination of their several diseases and derangements. Such anatomical and physiological sketches as here contemplated, are thus brought forward from necessity as well as for the purpose of maintaining a certain consistency of plan throughout the work; for it is as important to possess an acquaintance with the structure and functions of the organs involved in infantile diseases, when investigating their nature and devising plans for their treatment, as it is for the successful conduct of similar inquiries into the nature of adult maladies.

The diseases of infants will be found to comprise two great classes; viz. 1st, that of organic changes in the constituent tissues of the body; and, 2ndly, that of disturbances of the healthy train of actions carried on by the various systems of which it is composed. But if all the diseases to which children are liable were to be brought under review, the author would expose himself to the imputation of trenching too much on the field of general pathology for his present purpose, and of extend-

ing his labours beyond the legitimate boundaries of his subject. He therefore deems it expedient to confine his attention simply to those diseases which appear principally during the earliest years of human existence; and to consider them severally, either as they manifest themselves at birth or are induced by the casualties of parturition; and as they are developed during the evolution of the several phenomena of incipient infantile life, or at most of those of a very few years of our earliest infancy. The arrangement, however, of the subjects in this part of the work being in a great measure founded on the nature of the tissues principally or exclusively affected, making allowance for the greater variety of the organs the diseases of which will have to be discussed, a close resemblance in method will thus be kept up between the treatment of its matter and that of our preceding divisions. The author will distribute his notices of the diseases of children under the following heads:—

1. Of doubtful states of vitality and of anomalous formations and congenital diseases presented at birth.
2. Of the diseases of the digestive organs, including especially those of the mucous membranes.
3. Of the circulation of the blood; and some of its principal derangements.
4. Of some of the functions and disorders of the respiratory organs.
5. Of some of the more important diseases of the brain and nervous system.
6. Of the more popular cutaneous affections of infancy.

OF OPPRESSED OR DOUBTFUL STATES OF VITALITY OF CHILDREN AT THE BIRTH.—It sometimes happens that children are born in so feeble a state as not to exhibit the usual manifestations of life. Of these births we have to notice two very distinct varieties, which are designated correspondingly with their supposed causes. Children so born are said to be either in a state of asphyxia or apoplexy.

The term ASPHYXIA is here used simply to signify the absence of the usual signs of life. In this case the child is pale, apparently exsanguined, flaccid, immobile, and, to all appearance, perfectly without sensation. This state of things may be a consequence of detachment of a portion of the placenta either during the labour, or immediately after the expulsion of the child, or of temporary suspension of the circulation of the umbi-



lial cord from pressure of the practitioner's hand, or of any part of the child, or of the parietes of the parturient passage upon it, during its transit through the pelvis ; or else from the presence of obstructions occasioned by knots or otherwise, in a funis of inordinate length. The treatment in cases of this kind is to rouse the energies of the foetal subject, if peradventure any latent sensibility should still exist, by strong frictions, or the application of the hand smartly to the nates or other parts of the child, by immersion of its entire body in hot water, and by a dexterous and speedy inflation of the lungs. The treatment properly prophylactic of asphyxia, consists especially in preventing the cord from sustaining pressure, and in effecting the delivery as soon as it can be made safe and practicable.

The APOPLEXY of new-born infants must be ascribed to compression of the head during its passage through the pelvis, to the retention of venous blood within the encephalon in consequence of such compression, and eventually to the general suspension of the circulation throughout the foetal system. In this form of infantile apoplexy the subject presents the same dark-coloured, bloated countenance, suffused eyes, and want of power of motion, as we find exhibited in cases of apoplexy in adults ; and these symptoms constitute a sufficiently practical diagnosis between it and the asphyxia just alluded to. On inspection of the body after death under these circumstances, we find the vessels of the head exceedingly turgid, and many of them ruptured, and their contents effused into the ventricles, and into different parts of the brain, forming cysts, containing deposits of coagulated blood. The nature of the cause thus exhibited by dissection furnishes obvious matter for a highly UNFAVOURABLE prognosis in the worst forms of cases of this description. If also the umbilical cord should present the character of a BLuish-YELLOW TINT, indicative of stagnation of the circulation for a considerable length of time, the practitioner might consider himself absolved from the obligation of instituting any process of resuscitation, as in such a case he could by no possibility anticipate any useful result from it. If, on the other hand, the complexion of the umbilical cord approximate to that of the living condition of the funis, resuscitation should by all means be attempted, even though the fact of the vitality be rendered doubtful by a total absence of pulsation. In accomplishing this object, the first thing to be done should be to allow about two ounces of blood, AT MOST, to escape

from the umbilical end of the bisected cord. This moderate, but safe, amount of relief being given to the overweighted circulation of the foetus, its entire body, up to the chin, should be immersed in hot water, of which the temperature should be the highest that could be borne by the practitioner's own hand. To this should be added strong friction of the extremities, both superior and inferior, in the direction of the superficial veins towards the heart. The function of breathing under these circumstances might require an artificial commencement by inflation of the lungs. Such inflation ought therefore to be instituted as soon as possible, and to be prolonged with great patience, until there should remain no hope of a successful issue.

OF GREAT FEEBLENESS OF NEW-BORN INFANTS.—The causes of the asthenia here supposed, are resolvable either into defective supply of nutriment in the womb of the mother, or to defective capacity in the assimilating functions of the foetus. Great paleness of the foetus, with obvious marasmus of the different parts of its body, ought not therefore to be considered as an absolute evidence of its incapacity to support life at the moment of its entering upon its new mode of sustaining it. Simple syncope should be considered as a temporary absence of the function of respiration, and should therefore be relieved by artificial inflation of the lungs. Premature birth would always be a natural cause of the feebleness here treated of.

OF ANOMALOUS APPEARANCES AND FORMATIONS AT BIRTH.—Of the deviations from the ordinary forms of parts presented immediately after birth, some are the effects of pressure, or of other accidents sustained by the foetus during its transit through the parturient passage; and others the result of imperfect or preternatural development of parts before birth. The latter are usually called congenital diseases of children. Those imputable to the action of birth are more immediately the objects of professional treatment.

OF CERTAIN EXTERNAL EFFECTS AND INJURIES ATTRIBUTABLE TO PARTURITION.—In some cases of apoplexy of infants at the birth, the foetal head is found greatly elongated from distension and protrusion of the scalp, in consequence of retention of venous blood within its substance. This elongation from the identity of its situation with the locality of the small fontanelle, or mole of the head, as it was formerly called, is, in the older books of midwifery, designated the MOLE-SHOT HEAD. Cases have, moreover, been

recorded of intumescence of parts of the head at birth, from the presence of a certain quantity of a viscid fluid beneath the scalp and pericranium. Incisions have occasionally been made into these morbid deposits; but such a treatment is not required, inasmuch as the fluid in question will never fail to be taken up by the absorbents in the course of five or six weeks subsequently to the child's birth. Again, the presenting part of the head, by reason of its long exposure to pressure during labour, has occasionally, but very rarely, been known to sustain so much compression as to terminate in suppuration. Such a case must be treated on common surgical principles.

OF DEPRESSION OF ONE OR BOTH OF THE PARIETAL BONES.—This occurs in difficult labours where the relative proportions of the head of the fœtus and the parturient passage are not exactly adjusted, and is that form to which the name of HORSE-SHOE HEAD has been given. The treatment recommended for it is entirely mechanical. Some have endeavoured to squeeze out the depressed bones as one would squeeze an indentation out of a tin canister. For the same purpose, traction has been employed by means of adhesive plaster applied firmly over the depressed portions; cupping-glasses have also been applied with the same intention. Generally no mechanical assistance is required.

Serious injuries are sometimes received from compression of the parietes of the pelvis upon the child in cases of great confinement of the parturient passage, producing hideous distortions and discolorations of different parts of the fœtus. A French writer notices a case of one of the servants of a nobleman of his own country, whose child suffered so exceedingly from a case of protracted labour, that, when born, it presented the aspect, and the complexion, and the peculiarity of features, of a young African, to the no great mortification of her husband and friends. The mother was required to explain so remarkable an occurrence; when she acknowledged that she had entertained some kindly feelings towards the black footman of the Duke of Guise, her master. The circulation of the child having recovered its natural vigour, the ordinary European complexion returned. The discoloration had been exclusively the effect of stagnation of the fœtal blood within the gorged veins of the face.

The undexterous use of instruments, or of the hand, has been productive occasionally of fractures, dislocations, and other injuries. But misfortunes of this description are more frequently



imputable to the abuse, than to the proper use, of any obstetric powers whatever.

OF CERTAIN LOCAL DISEASES OF CHILDREN OCCURRING SOON AFTER BIRTH, OFTEN FROM CARELESS MANAGEMENT.—It is usual in tying the umbilical cord to leave a portion of about three inches of it included between the ligature and the navel, in order that a second ligature or even third may be applied to it if necessary. This portion of the cord should be included between thick folds of old linen ; and if such a precaution be omitted, its putrefaction may irritate the immediately contiguous part of the abdomen into a state of erysipelatous inflammation. After the cord shall have dropped off, the part continues raw for about three days. In common cases this may be healed by the application of calamine powder ; but sometimes, either from carelessness or from peculiarity of constitution, the part does not heal kindly, but continues to discharge matter for several days ; or it may eventually become erysipelatous. Hence the abdomen becomes intensely inflamed, and the child for the most part is carried off in convulsions. When gangrene and loss of substance supervene, it will sometimes be found useful to cover the part with a thickish poultice, reduced to a softer consistence with port-wine. The constitutional treatment should consist in the exhibition of calomel, in doses of two or three grains daily, to act as an aperient and a cholagogue, and of moderate quantities of quinine to sustain the strength.

OF HÆMORRHAGE FROM THE UMBILICAL CORD.—The escape of the blood in this case is always from the vein. Hence the unsuitableness of attempting its subduction by much compression. On our failure therefore to arrest the hæmorrhage by means of our ordinary astringents, we should resort to the actual cautery, by means of a common stocking-wire made red-hot. The eschar thus produced would be of no consequence, and it might be speedily expected to stay the hæmorrhage.

OF PURULENT INFLAMMATION OF THE EYES OF INFANTS SPEEDILY AFTER BIRTH.—Inflammation of an infant's eyes is a very common consequence of want of proper management during the first three or four days subsequently to birth. One of the earlier faults of the nursery, there can be no doubt, is to bathe the child's eyes with a strong solution of soap in water ; and another is, to expose its eyes to the action of cold streams of air and too intense light soon after its birth. But there is reason to believe, that the

inflammations under consideration are more frequently derived from exposure of the eyes to blenorrhœal impurities during the transit of the child through the vaginal passage. The treatment which has been found almost always successful during the incipient stage of this inflammation, has been the application of a small leech to the lower lid of the affected eye, and to the precise locality of the infra-orbitary foramen. Added to that, it may also be useful to exhibit, at the very commencement of the inflammation, five or six grains of ipecacuanha powder as an emetic. A few grains of calomel given as an aperient, will then in most cases suffice to complete the cure. Should much inflammation of the conjunctiva be still left, the action of absorption may be accelerated by dropping into the affected eye one drop of a solution of the nitrate of silver in distilled water, in the proportion of two grains to an ounce, two or three times a day. The reader should be apprised, that if this early treatment be neglected, and the inflammation be allowed to be exasperated into advanced purulency, the tunics of the eye may actually suffer destruction, and the organ be permanently deprived of its vision.

OF CONGENITAL DISEASES AND MALFORMATIONS OF NEW-BORN INFANTS. AND FIRST, OF OCCLUSION OR IMPERFORATE STATES OF THE NATURAL PASSAGES.—Examples of such imperforate states are those of the anus and the rectum, of the vulva and vagina, and of the urethra in both sexes. To these may be added, although occurring but very rarely, congenital obstructions of the larynx and pharynx. The rectum is thus affected in three different degrees or circumstances; namely, first, when the passage is only occluded at its termination by a film of membrane so thin and transparent as to shadow the meconium through. In that case, the treatment will be found very simple, consisting exclusively in making a crucial incision across it. In other cases, we meet with a firm cohesion of the parietes of the tube for an extent of one or more inches. If the tube extend to within half an inch of the verge of the anus, an artificial passage might possibly be made, and with great assiduity and management be kept open for permanent use. The third variety of an imperforate rectum is, when the whole or greater part of that gut is wanting, or when the remainder communicates either with the bladder or with any conformation of a cul-de-sac in its neighbourhood. This case, if at all to be relieved, could only be

remedied by the substitution of an artificial anus. Imperforate states of the vulva and vagina need not be made the subjects of treatment immediately after birth, provided the urethra be not also implicated in a similar predicament.

If, on the other hand, the urethra in either sex be imperforate at birth, it should be most carefully examined as soon as discovered or suspected; it being obvious, in such a case, that an operation would be required to be performed before the lapse of many hours. The more common variety of an imperforate state of the urethra consists in the stretching of a very thin membrane across the external orifice of the tube, corresponding with the analogously attenuated membrane already mentioned, as closing up the verge of the anus. It is easily perforated by means of a point of a lancet or probe, which ordinarily is all that is required to furnish a free outlet to the stream of urine from the bladder. Obstructions occupied by other localities of the urethra will involve the results of the case in much greater difficulties and dangers, and require the assistance of some of the more delicate services of the art of surgery.

OF PRETERNATURAL ADHESIONS OF PARTS TO CONTIGUOUS SURFACES.—Of such cohesions, are those between the upper and lower eyelids and the opposite surfaces of the nostrils, between the tongue and the lower anterior part of the mouth, between the frænum and the whole of the tongue even to the tip, and intermediately between fingers, toes, etc. The cohesion of the whole length of the tongue as far as its tip with the flooring of the mouth, is not a very unfrequent inconvenience; it being commonly known by the designation of a child being tongue-tied. It is most easily rectified by dividing the frænum to some distance from its connexion with the tongue. This separation may be very safely effected to the full extent of its natural connexion with the body of the tongue, provided the practitioner take care not to wound the renal arteries. In the case of a broad-belted adhesion of the body of the tongue to the contiguous surfaces below it, the remedy will be less easy and less certain. There is generally a great disposition to reunion of surfaces subsequently to their artificial separation.

Cohesions of the fingers and toes by intermediate tissue has given to some people the designation of web-footed and web-handed persons. The proximate fingers or toes have sometimes been agglutinated, without any intermediate web. In those affections



of the toes simply, little necessity can exist, in this country where shoes or sandals are used, for any operative treatment; whereas, even in web-handed cases, it may not always be necessary.

**OF COHESION OF THE PENIS TO THE SCROTUM.**—This malformation is sometimes accompanied by other imperfections or confusions of the parts. If the cohesion be very extensive, it will be difficult to separate it to a sufficient extent to give full freedom to the actions of the penis. But, the success of the treatment will greatly no doubt depend upon the perseverance of the patient, and his willingness to submit to divers repetitions and modifications of operations as the necessities of the case might require.

**OF CONGENITAL HERNIAL PROTRUSIONS.**—The designation of *HERNIA CEREBRI* has occasionally been applied to protrusions of brain through irregular spaces or apertures in the skull, by reason of defect of bone. The object of the treatment here, if attainable, is to confine the brain within its natural boundary, the skull, without exposing it to the risk of dangerous compression. The practitioner's success will much depend upon his assiduity, and on the delicacy of his mechanical management. Some of these cases have done well for a year or two; but in others, the process of their ossification progressing too rapidly as well as irregularly, they have ended fatally at an earlier period, by the child being carried off suddenly in convulsions.

**OF INTESTINAL HERNIA.**—Children have now and then been born without the whole of the abdomen being covered in by its ordinary complement of integument; when portions of intestines or other viscera have been found protruding through the openings. Art can do little to increase the rapidity of the natural growth of the parts thus deficient. Nature has sometimes been found to exert herself for the supply of such deficiencies with great energy; it being then the duty of the practitioner to contribute to her assistance, whatever dexterousness of mechanical support his art may be able to extend to her. The variety of hernial protrusion, which is most apt to present itself congenitally, is *omphalocele*. This form of intestinal protrusion is an inconvenience principally from its liability to extension, on account of the crying of the child during early infancy. Its treatment is chiefly to be conducted on mechanical principles. Equable pressure, and not too much, with occasional reductions of the protruded gut from time to time, is all that need be resorted to,

to secure its eventual well-doing. The better mechanic in this case, will prove the better surgeon. Trusses should be avoided. **INGUINAL** hernia when congenital is very troublesome, the gut in such cases being in close approximation to the testicle. The tumour increases whenever the child cries. In these cases also, we never allow any truss to be applied during the first year. After the second or third year, when the parts become firmer and less irritable, a truss may be had recourse to with great advantage.

**OF CLEFTS, OR SOLUTIONS OF CONTINUITY IN NATURALLY-CONTINUOUS TISSUES.**—Of these cases, the principal is the hare-lip, of which there are three varieties; namely, 1. One cleft in the upper lip. 2. Two clefts in the upper lip. 3. Such division or divisions of the lip accompanied by a fissure of the palate. The time of operating in these several forms of cases has often been disputed. This subject having only a few years ago occupied the attention of a consummate practical surgeon now resident in the metropolis, the author has great confidence in the opinion of that gentleman for a decision of this point. “Congenital deficiency of the lip uniformly occurs in the upper one. It is either simple or complicated. Frequently there is only a fissure on one side of the mesial line. This may be combined, although it occurs but seldom with a division of the soft or hard palate; or there may be a fissure on each side of the mesial line with an intervening flap. The flap may be either of the same length as the rest of the lip, or more or less shortened; and it may be either free, or attached to part of the alveolar process. In such cases as the latter, the central alveolar processes and teeth often project considerably beyond the arch of the hard palate, greatly increasing the deformity. The deficiency of the lip produces a disgusting and horrible deformity of the countenance; and when there is a division of the palate, the voice is indistinct and almost unintelligible.

“The simple fissure of the lip, without deficiency of palate, is easily remediable by operation. The fissure, as already mentioned, is to one side of the mesial line, and its edges, covered by a continuation of the prolabium, are rounded off at their lower part. The operation is not attended with much loss of blood, nor is it very painful. It can be performed at any period of life; but in young children it is not advisable to have recourse to severe operations on these or other parts. Children bear the

loss of blood badly, and their nervous system is apt to be shaken. Convulsions are induced and often terminate fatally. The most proper age for removing deformity by operation is from that of two years and a half to four years. There is then no danger incurred, and during the growth of the individual, the parts recover more and more their natural and healthy appearance." After giving a neat description of his method of operating for single hare-lip, the writer proceeds to observe, that, "Fissures more or less extensive of the hard palate generally attend double hare-lip. The position and size of the intermediate portion of the lip, and of the superior maxillary bone, are various; and the operator, in forming his plan of procedure, must be guided by the state of the parts." Here, again, we have a description of the requisite operations to be resorted to in the case supposed. "When the hard palate is deficient, the patient is subjected to great inconvenience from food escaping into the cavities of the nose, and, in later life, a horrid wretchedness of articulation occurs. It may be readily understood that surgery can be of little avail here. Recourse must be had to mechanical contrivances." . . . . . "Fissure of the soft palate is usually accompanied by separation of the bones from which it is suspended. The size of the fissure is various, and depends very much upon the state of the hard parts. In some cases, the extent of separation is great; in others, the edges are readily approximated by making the patient throw the muscles into action. The latter class of subjects admit of operation with a view to a permanent union of the edges of the fissure. But it is a proceeding which, to ensure success, requires not only great steadiness, coolness, and dexterity on the part of the operator, but the utmost courage, submission, and self-denial on the part of the patient. These qualifications can scarcely be expected in patients under the age of thirteen or fourteen; and, by consequence, the operation should not be attempted till after that time of life."—*Elements of Surgery*, by Robt. Liston, Esq., Pt. 1, p. 187. Lond. 1831.

OF SUPERNUMERARY AND SUBSTITUTE OUTLETS FROM THE RECTUM AND BLADDER.—These have usually been distressing examples of malformations, admitting of little or no advantageous treatment. The art of surgery has, however, occasionally protracted life for many years under such circumstances.

OF DISTORTION FROM IRREGULARITIES OF RELATIVE POSITIONS OF



PARTS.—Of such distortions, the most frequent variety is that of the lower extremities called club-feet. The toes in some cases are directed outwards, and in others inwards. Cases of the latter variety are in technical language called *Vari*, and those of the former *Valgi*. The most frequent specimen is incomparably that of the *Vari*; whereas the distortions having the toes turning outwards are the most easily cured. But both forms are curable, or at least capable of very great relief by skilful and persevering management. Failure, however, is often incurred by premature exertions to effect the cure. It is better not to bind the child's foot, nor in any way to confine the extremity, during the first twelve months after birth, nor until the limb shall have attained a degree of firmness and robustness sufficient to enable it to sustain bandages with impunity to the progressive currency of the blood and other fluids circulating within its tissues. During the first twelve months, the object of the practitioner will be attained by the child's nurse simply undertaking to keep the affected foot firmly within one of her hands as nearly in its natural position as possible during the greater part of the day and night. This retention of the foot in its natural position relatively to the leg, in the soft and warm hand of the nurse, will go far towards correcting its malposition without essentially interfering with the circulation of its blood. The reader may perhaps recollect often to have seen subjects of club-feet presenting the appearance of spindle-formed calves of their legs. He may take for granted that such reduction of the natural magnitude of the limb is for the most part produced by injudicious bandaging during the earlier weeks and months of life. At the age of twelve or fifteen months the child's limb will have become sufficiently firm to bear with advantage the application of straps, which constitutes the SECOND STAGE of the treatment. This mode of management will occupy a period of about another twelvemonth, when the child will, in most cases, be competent to run alone. At that period we should begin the use of the jointed machines usually applied to distorted inferior extremities of children. The apparatus should be used only for a very few hours daily for at least six weeks or two months. Subsequently to that time the child will be able to bear its iron supporters altogether during night and day with comparative impunity. Three, four, or even five years altogether may be required of these being worn before the perfect reduction of the foot shall

have been effected. The absolute accomplishment of the object by due skill and perseverance is, however, ultimately attainable.

OF MALFORMATIONS FROM EXCESS OF PARTS.—The more ordinary examples of such malformations are supernumerary fingers and toes. These appearances have not unfrequently presented themselves in particular families, and have been known to reappear in successive generations of the same families for many years. Of supernumerary digits, whether of the upper or lower extremities, the elementary parts have seldom been perfect as to their complement of excess, some of the joints or parts of the osseous portions being wanting or imperfect. At other times, portions of bone have been connected with the principal digit by means of links of mere integument.

Children are sometimes born with growths and discolorations on different parts of their surfaces. It is a vulgar notion that these appearances are the results of strong impressions upon the imagination of the mother during pregnancy. There are few educated men who do not now refuse their assent to this opinion.

Arterial *nævi materni* require early attention, as they often grow rapidly in size, and become the seats of dangerous hæmorrhages. In such cases the parts must be dissected out, after having been properly secured by ligatures. In cases of inconsiderable tumours of this kind, the extension of the mischief may often be arrested by the introduction of a large thread through the substance of the *nævus*, and perhaps another at right angles with the first. The author has adopted this practice in the treatment of some of the milder specimens of *nævi* for many years; but he saw it used, upwards of five-and-thirty years ago, on the recommendation of the late Doctor Cleghorn, of Glasgow.

Congenital defects of parts are of course incurable. All that art can do, can but occasionally, and then very imperfectly, find substitutes.

OF CONGENITAL DROPSICAL EFFUSIONS. EXAMPLES. SPINA BIFIDA. HYDROCELE AND ANASARCOUS ENLARGEMENTS OF THE EXTERNAL GENITALS.—*Spina Bifida* is a tumour which is observed occasionally on every part of the spine, but most commonly about the last lumbar vertebra. At birth, it is usually small, the skin being scarcely discoloured. But there is always an evident fluctuation and a marked deficiency of spine beneath, the

spinal column appearing to start out prominently on either side. The fluid is effused into a cyst, within the spinal sheath. These tumours are originally small, but gradually grow larger; the integuments becoming perceptibly thinner, until at length a slight exudation takes place, which is followed by a bursting of the tumour, and the escape of a yellow fluid. This result is soon followed by convulsions. Other tumours, not of the same nature as the above, are observed about the base of the sacrum, which also generally prove fatal. We may remark, that most tumours of a bloody colour upon the spine, are of a dangerous nature; and that, unless when very superficial, they usually terminate fatally.

Males are sometimes seen born with considerable enlargements of the scrotum, from HYDROCELE. It is a case that requires no particular treatment, inasmuch as the author has never seen an example of the fluid of a congenital hydrocele, which was not absorbed in less than two months subsequently to the birth of the child, although he has seen two examples in which the operation was performed unnecessarily by professed surgeons. Absorption may be promoted by the use of a mild solution of superacetate of lead, or of sulphate of zinc, to the parts affected.

## II.—OF THE DISEASES OF THE DIGESTIVE ORGANS.

OF THE DISEASES OF THE ALIMENTARY CANAL.—Infants and very young children are exceedingly subject to disordered states of the bowels, from the slightest causes. Among the morbid affections of the chylopoietic organs, we may consider as one of the most important, the action of spontaneous vomiting. This morbid excitement of the stomach may be induced by ungenial impressions of atmospheric temperature applied to the very susceptible external surface of an infant, by its exposure to sudden changes of atmospheric temperature, by over-repletion, by sucking voraciously after fasting, by sucking a nurse in a state of excitement from strong exercise or from passion, by exposure of the lower extremities or of other parts to the action of cold, to that of cold under garments, napkins, etc. interfering with the process of digestion, by the infant being deficiently supplied with its natural food, the mother's milk or that of a substitute, or by sudden changes from good milk to another of inferior quality, and by the use of artificial food of sundry and unsalubrious properties.

If the appearance of the matter thrown up be natural, like



softly-curdled milk, and the vomiting amount not to any more than simple regurgitation of the milk swallowed, it is to be imputed to over-repletion, and to be relieved by the exhibition of a light cordial, such as any of the aromatic waters, as of dill, aniseed, or cinnamon: or a little mixture may be exhibited, consisting of half a drachm of the compound aromatic spirit diluted with three or four ounces of distilled water; of which should be given a teaspoonful frequently, until the sickness shall have subsided. If the matter thrown up shall have an unusual appearance, the curd be hard, and its colour yellow or greenish, we empty the stomach by means of three or four grains of the powder of ipecacuanha, and the bowels by a few grains of calomel; after which the child will soon get well. If the mother's or the nurse's milk be of bad quality, or defective in quantity, a successor should be provided for her, who will be able to perform the duties of lactation more efficiently.

OF COLIC OF EARLY INFANCY.—Colic, like the foregoing complaint, is induced by very slight occasional causes. It is strongly indicated by the natural actions of the infant. The child is apt to start suddenly, to writhe and twist its body, to draw up its knees towards the abdomen, and if with these there be occasional discharges of flatus, we may ordinarily be fully assured of the nature of the disease. The treatment of infantile colic is by the exhibition of mild cordials, gentle laxatives, and a warm bath. If the face be much flushed, attended by heat of the whole surface, we should take away a little blood by applying a leech to one or both temples, according to the child's age, by way of guarding against ulterior danger, until the nature of the case shall have further developed itself. Our laxatives in those cases should be calcined magnesia or calomel. Both are mild and safe; but calomel may be depended upon for producing the best action as a cholagogue. Preparations of rhubarb stimulate the bowels of very young children too much. It is moreover possible that stimulating medicines of this class may have the property of exciting the bowels into introsusceptio. Therefore mothers should usually confine themselves in their administration of aperients to infants, to small doses of fine-drawn castor oil, calcined magnesia, calomel, manna, senna, and neutral salts. Opiates should be given to infants at the breast with great caution, inasmuch as they are especially calculated to retard and greatly to derange the action of the liver.

OF INTUSSUSCEPTIO.—Intussusception is one of the most dangerous diseases to which children are liable. Its attack is sudden, and it generally goes on rapidly to a fatal termination; which sometimes occurs in twenty-four hours, but more commonly within two or three days after the commencement of the malady. It consists in the passing of one portion of the intestine into another immediately continuous. When the upper portion passes into the lower, it is called the progressive variety of intussusceptio; but when the lower is invaginated by the upper, it is called the retrograde. The last and best history of this affection is to be found in an essay communicated by Dr. John Hunter to the Transactions of a society for the improvement of physic and surgery.

The first indications of the presence of the disease, is the immoderate and frightful crying of the child, which from the twisting and contortions of its body might be supposed to arise in consequence of its suffering from sever colic. Not long after the beginning of the attack, a large stool is generally passed, and the child becomes easier for a few hours. So long as the relief afforded by this evacuation continues, it sucks greedily, and manifests no further evidence of indisposition. In a short time, however, the paroxysms of crying return, and frequent motions begin to be passed, consisting, however, of nothing but mucus, sometimes streaked with blood. Even at the very outset of the disease, the powers of the circulation are very much oppressed, and the pulse is observed to beat with astonishing slowness. This circumstance may indeed be considered as a pathognomonic symptom, analogous possibly in some degree to the slowness of the pulse, which sometimes accompanies bilious colic, and by its circumstances easily to be distinguished from that which attends one stage of hydrocephalus internus. In the complaint we are now describing it comes on suddenly, immediately after a violent crying. The measure of its frequency will then be found averaging between forty and fifty. The child continues the whole of the time to suck greedily. On the termination of the disease the patient is either cut off by irritation of the nervous system, or by convulsions, or else by true ileus from obstruction. The obstructed and inflamed ring forming the locality of the mischief, is often found in a state of advanced sphacelus after death. Most commonly convulsions and stupor come on before the scene is closed.

In the treatment of this disease, we should always proceed on the supposition that it is the progressive species; and hence every medicine increasing the peristaltic motion downwards must be expected to do mischief. We therefore begin by endeavouring to reverse the peristaltic motion and to relax the whole system. For this purpose we order the abstraction of a few ounces of blood according to the age of the patient. It should be enough to induce fainting, or at all events to effect a perceptible reduction of all excessive excitement of the heart and arteries. Then should follow a long immersion of the body in a bath of from ninety-eight to a hundred degrees; after which should be exhibited an active emetic to induce vomiting. If these means fail, we may suspect the case to be one of the retrograde species, when the indication would be to increase the peristaltic motion of the intestines in their natural direction downwards by mild cathartics and injections.

OF DIARRHŒA OF EARLY INFANCY.—When we consider the multifarious tissues of the intestines, their extent, delicacy, and sympathies, their muscular fibres, their apparatus for the formation and absorption of chyle, together with their nerves and blood-vessels, it should not appear a matter of surprise that this remarkable organ is the subject of several varieties of morbid states. The injury of one of those systems of action or organization may not only affect the rest, but this intestinal disease may influence other parts secondarily connected with them, whether by sympathy or approximation; as, for example, the stomach, liver, pancreas, etc. Diarrhœa may appear also under some variety of circumstances, both as respects its causes and the character of the evacuations. Amongst its causes we may enumerate, 1st, Milk of a bad quality; 2nd, That natural and best food in excess; and, 3rd, Unusually large supplies of it after long fasting. 4th, Other and improper foods. 5th, Sudden changes of aliment. 6th, Injudicious attempts to wean delicate children. 7th, Irritation of the bowels from ill-digested food. 8th, Deficient or redundant secretion of bile. 9th, Previous costiveness. 10th, The irritation of dentition. 11th, A morbidly susceptible state of the bowels connected with general debility.

Those children suffer most from an irritable state of bowels who are originally, in the course of nursing, most feeble, delicate, and puny.



Diarrhoea being a frequent cause of death, we cannot be too attentive to its mode of treatment. When arising from milk of a bad quality, we change the nurse. If that cannot be done, we partly wean, and attempt to feed the child with ass's milk, or partly with some spoonfuls of good beef gravy, rendered palatable by the addition to it of minute quantities of powdered sugar, or of salt. Food made with the mucilage of barley, or of wheat, well percolated and aromatised with dill or cinnamon, and strengthened by small additions of gravy, may be sometimes substituted with advantage for innutritious milk of mothers. It is difficult to say what, in some human milks, should be the precise cause of their not agreeing with the stomachs of the proper mothers' children : it being the fact, that one woman's milk has disagreed in some cases extremely with the stomach of her own child, which has however furnished abundant and excellent nutriment to a child of the same age born by another woman. When supposed to depend upon an excessive supply of the mother's milk, we recommend a diminution of the quantity. Voraciousness is not unfrequently a symptom of this disease. Should the diarrhoea be attended with much oppression or consequent irritative fever, an emetic should be given, with a few grains of ipecacuanha ; which should be followed by the exhibition of repeated measures of calomel, with a view to the improvement of the gastric secretions. When the stools are natural in colour, but more liquid than usual, the frequency moderate, and the continuance short, we may then rely on small doses of rhubarb. We should always guard against the opposite extreme of costiveness by moderate doses of calomel. If the looseness of the bowels be a supposed result of dentition, we effectually lance the gums. Under these circumstances it is not often expedient to stop the diarrhoea ; while, however, it may be quite necessary to improve the character of the alvine evacuations by the exhibition of small doses of calomel two or three times a week. If the stools be acid or otherwise morbid in their fœtor, the case should be treated with rhubarb and magnesia. When mercurial and other aperient medicines are found not to improve the quality, and at the same time to weaken the subject by increasing the frequency of the evacuations, we omit them, and substitute absorbents and opiates ; the latter in small doses. The march of the disease is often exceedingly rapid. It therefore is important not to lose time ; and we may often save it by the

exhibition of opium as an injection by the rectum. Our greatest reliance, after all, for the removal of diarrhoea is to be placed upon the vigorous use of mercurial remedies.

OF WORMS INFESTING THE BOWELS DURING EARLY INFANCY.—The worms which ordinarily inhabit the human body are of three species—the *tænia*, the *lumbricus*, and the *ascaris*. The *tænia* never occurs, however, in infants, nor in very young children. Of this variety of worm, therefore, it may suffice to state, that there appear to be two species: 1st, The *tænia solium*, consisting of flat-jointed portions, from a quarter of an inch to half an inch in length, with the orifices placed on the margins of the joints; 2nd, The *tænia lata*, with the orifices on the surface. The *tænia* is more difficultly removed from the human bowels than any other species of worm. The treatment is by brisk cathartics. The most commonly approved forms of cathartics are jalap and turpentine.

The *LUMBRICUS* bears a considerable resemblance to the common earth-worm. There are betwixt them, however, several important differences; of which the principal may be said to be, that in earth-worms the sexual organs are essentially the same in each individual, being all hermaphrodites; whereas among the *lumbrici* there is evidently the distinction of male and female. For several other differences of character see Baillie's chapter upon this subject, in his work on Morbid Anatomy; and also Dr. Hooper's valuable paper on the same subject, in the fifth volume of the Memoirs of the Medical Society. This worm is from three to ten inches long, and may exist in any part of the intestinal canal. Clusters of them sometimes creep into the stomach, and are ejected by vomiting. In some cases, if we may depend upon the reports of pathologists, they have been known to perforate their way through the parietes of the intestines, and to migrate into other viscera.

The *ASCARIS* is a very small worm, about one-half or three quarters of an inch in length, having a long small projection at one extremity, whilst it is rounded at the other. The seat of *ascarides* is exclusively the rectum. No animalcules similar to them have ever been found to live out of the body; nor can they by any human art be made to exist for any length of time, after their expulsion out of the animal body.

Of the origin of intestinal worms, there have been entertained various opinions, which have, for the most part, been exceed-

ingly unsatisfactory. One hypothesis is, that their ova are taken into the stomach with the food. But to this it is objected, that they have been met with in the bodies of children who have never taken any food except their mother's milk; and, secondly, that they have been found in the meconium of still-born infants.

Another hypothesis to account for them, is that of equivocal generation: but this is not supported either by any distinct analogy nor by any direct proof. Linnæus offered the suggestion, that the ova of these insects are formed at the same time with the other rudiments of the animal: but this notion scarcely removes any of the difficulty.

Different opinions have, moreover, been entertained as to the use of worms in the animal economy. It has been asserted, that worms have occasionally been found in healthy subjects, both of men and animals; and it was especially observed by Mr. Keppel, that in a number of rats which he dissected, worms were found in all the livers of those that were plump and healthy, and *vice versa*; and therefore he inferred, that worms are probably intended to consume putridities and acrimonies, which find their way into the intestines. If this were true, we should never meet with slimy and fetid stools during the presence of worms; which experience, however, proves is far from being the case. Again, it has been supposed, that worms are intended to increase the peristaltic action of the intestines. But that worms can be proved to exist at all in the human intestines during a perfectly healthy state of the constitution, is very doubtful.

MORBID SYMPTOMS INCIDENT TO THE PRESENCE OF WORMS.—The first derangement takes place, as might be expected, in the gastric system. The appetite, in most cases, presents a remarkable irregularity, being often astonishingly keen, whilst at other times it is languid even to loathing. There is often great craving for food after a full meal; and this may be considered a strong indication of the disease. The bowels are sometimes costive; but more frequently, the motions are loose; the motions are fetid, slimy, and occasionally streaked with blood. The stools are generally much too pale, and the dejections, at uncertain intervals, accompanied by fits of colic, alternating with periods of sickness and squeamishness. The diarrhoea is either continuous, or returns in paroxysms from to time. The countenance at length loses its usual bloom of health, and looks languid, thin, and pale. In the progress of the disease, a small dry cough



supervenes, and the body becomes emaciated, with general feverishness, fetid breath, tumid lips, enlarged abdomen, livid circles about the eyes, frequent pain of the head, and a depressed expression of the features. At length the nose, like the upper lip, becomes swelled, and the child is observed to pick its nostril almost incessantly. During sleep, it is moreover observed to grind its teeth, and in other respects to distort its countenance. The pupils of the eyes become gradually dilated, and at length hectic or other general irritative fever supervenes. The symptoms then begin to resemble other diseases, including those of hydrocephalus, as well as almost all those, as was observed by Dr. Rush, of the entire class of neuroses.

It sometimes happens that the diagnosis between worms and the diseases which they have sometimes simulated, has been attended with difficulty. It was once believed, that the swelling of the upper lip might be safely depended upon as a characteristic symptom: but it is now well known, that intumescence of the upper lip is a common symptom in strumous habits, as also in strumous affections about the nostrils and mouth in those habits. Picking of the nose should not even be considered an absolutely pathognomonic symptom; as it is also a symptom common to almost all derangements of the alimentary canal; whilst that of grinding the teeth during sleep may be made the subject of a similar remark. The true method of forming our diagnosis should be, in the first place to ascertain the presence of the worms, and then to compare that fact with our knowledge of the previous state of the patient and of the symptoms at the first attack. The irregularity of the appetite, the speedy craving for food after a meal, an attack of looseness or a sense of sickness shortly after eating, together with occasional colic pains, afford the most certain and characteristic marks of the presence of worms.

It is easy to distinguish between the presence of lumbrici and that of ascarides. It is the lumbricus alone which produces morbid symptoms of the general system; whilst ascarides, especially in the first instance, occasion only those of local irritation, such as tenesmus, diarrhoea, itching about the parts, etc. unattended by general derangement of the system. How worms in the intestines come to produce symptoms of general constitutional disturbance is a curious question; 1st, whether simply by acting on our general susceptibility of irritation; or, 2dly, by preventing or

injuring the due performance of the function of absorption of chyle; or, 3dly, by their bites, acting on the nervous system; or, 4thly, by a combination of all these modes. These are questions which we are by no means prepared to answer.

OF THE TREATMENT.—The indications of cure are, first, to produce the expulsion of the worms; secondly, to palliate the symptoms induced by them when practicable; and, thirdly, to restore vigour to the system. The medicines used to expel worms, called anthelmintics, are divided into chemical, or those which destroy by poisoning them; mechanical, or those which procure their expulsion by attrition, and by exciting the intestines into violent action, or a combination in the same formula of these several powers. The most common of the chemical remedies are preparations of mercury and antimony and sulphur, or combinations of the first of these with muriatic acid, or of muriatic acid with alkalis. Of this latter combination was common salt, which, during the middle and latter part of the last century, was a very common anthelmintic, with all classes of the population of England and Scotland. The present most prevailing practice consists in exhibiting calomel and jalap in the proportion of three or four grains of the one to ten or fifteen of the other, according to the special indications of the case. The sulphate of magnesia would probably furnish as powerful a remedy for worms as muriate of soda, provided children could be as easily induced to take it. Directly mechanical remedies are seldom resorted to in modern practice.

The *dolichos pruriens* was at one period a very fashionable remedy of this class, and in hot climates a very useful one. The part used is the hairy covering of the bean of the plant. In this country its effects proved so formidable as to lead to the depreciation of its use: whereas in warm climates the increased and plentiful secretion of mucus, which we may presume more effectually to defend the intestinal surfaces in those countries, made it a safe remedy. The principal mechanical remedy resorted to in Great Britain is tin filings. The filings of tin may be exhibited in large quantities; namely, in quantities of from half an ounce to two ounces for an adult, and in proportional quantities to children. The remaining remedies of this class of medicines are those which have the effect of acting on the worms by their attrition, and of poisoning them by their chemical qualities. These are the *Semen Santonicum*, or worm-seed;

chamomile flowers; and the *Geoffroya inermis*, or cabbage-tree bark. The worm-seed is a powerful anthelmintic. It may be given in the dose of from one drachm to two of the powder to the adult, in any proper vehicle, and in proportional quantities to younger subjects. In exhibiting it to children, the vehicle should be a sirup or conserve. At one time, chamomile flowers powdered, were very fashionably exhibited in our public hospitals, as an anthelmintic. The dose to the adult was about one scruple. A decoction was also used as an enema, for the expulsion of ascarides. To this was added occasionally, a few drachms of castor oil, or sometimes of other inferior oils on the score of economy: it being the fact, that nests of ascarides cannot long sustain life if inundated with copious oleaginous injections. The *Geoffroya Jamaicensis*, or the worm bark tree, has not for many years been made available as an anthelmintic in the practice of this country. The first published description of it was given by Dr. Wm. Wright, in Pt. II. vol. 76 of the London Philosophical Transactions. In the practice of England and Scotland, the action of this medicament proved too violent, by inducing dangerous vomitings and purging. When too active, the effects may be counteracted by well washing the stomach with warm water, purging the intestines with castor oil, and giving the patient plenty of thin gruel, acidulated with vegetable acids. Vegetable acid is said to be a specific against its deleterious effects. See a paper on this subject by Mr. Anderson, in the fourth volume of the Medical Commentaries. The best remedies for ascarides are oily enemata, alternated with full doses of calomel and jalap. The best remedies for the tape-worm, were it necessary to suggest it here, are also still ampler and more frequently repeated doses of calomel and jalap, or of tincture of jalap in compound decoction of aloes, and of large measures of the oil of turpentine. The best general anthelmintic undoubtedly is calomel, given in repeated doses with purgatives, to remove the morbid contents of the intestines, and then without purgatives to improve their secretions. It is usual to prescribe tonics after a course of anthelmintics; when bark and steel are exhibited in preference to most medicaments of this class.

OF APHTHÆ OF EARLY INFANCY.—The thrush consists of an eruption of white pustules, extending in some cases over the whole mouth from the fauces to the utmost limits of the edges of the lips. It is a disease which principally occurs within the first



month; although there have been instances in which it has extended beyond that period. Of this affection there are two varieties: a local one consisting simply in a painful ulceration of the interior of the mouth; and a more general affection producing serious derangement of the system. The local species is generally considered as a mere sore mouth, presenting the appearance of an eruption of white pustules, resembling particles of curdled milk, at first at some distance from each other, but gradually spreading, and at last confluent together, so as to form one complete crust. This crust may at first be observed to be white; but it gradually becomes of a yellow colour, harder to the feel, and at last may be observed to loosen from its attachment, and to drop off, leaving the surface which it had previously covered remarkably red. If by any means it be prematurely forced off, another crop immediately succeeds in larger quantity than the first. This will happen successively, if the existing crop is not allowed to ripen and to fall off spontaneously. In this species of the malady there is usually no danger to be apprehended. The child suffers but little from it, and for the most part only for a few days. It cannot, however, grasp the nipple so firmly as usual. The appearance of aphthæ soon after birth is commonly the result of mismanagement in giving the child too much spoon-meat. So commonly does this indeed take place, where much feeding with spoon-meat is resorted to, that we may generally prognosticate the event whenever this practice is followed. The treatment of this form of thrush is very simple: little indeed need be done. When allowed to run its own course, and the crust, when formed, is left to drop off spontaneously, it seldom returns again. It may be expedient, however, to prescribe some local application, to prevent nurses from interfering too rudely in supplying applications of their own. Our usual application is a linctus consisting of borate of soda, with sirup or honey, in the proportion of a drachm of the borax to an ounce of honey or sirup. This linctus is applied in small portions over the apthous surface. A solution of the borate of soda in water should, however, be considered as possessing somewhat greater power. A pint of boiling water dissolves one hundred and eighty-three grains of the salt. Aphthous eruptions are sometimes attempted to be removed by astringent applications, used by means of a probe, with a piece of rag tied round it. All these means, however, are improper. When the crust begins to

harden, we may use the borax in sirup, or a linctus of sirup of roses slightly acidulated with sulphuric acid, or currant jelly dissolved in water, having for our object to do nothing actively as to the use of topical remedies, and but simply to wait until nature shall have fulfilled her intentions. Excessive quantities of spoon-meat during the first days after birth having been considered the more frequent cause of the form of thrush just noticed, the more immediate remedy of the malady will consist in putting the child as soon as may be to the breast. But that might prove some little inconvenience to the mother, as the aphthous mouth of the child will seldom fail to occasion soreness of nipples, and vice versa. This fact being well known, it would be proper to advise the mother to suckle her infant through a shield, until the thrush should be cured. If the functions of the infant's bowels be irregular, the alvine evacuations being acid as to their fœtor and various in their consistency; calomel with absorbents might be exhibited from time to time; or small doses of well-levigated rhubarb might be added to twice or three times its weight of magnesia.

The other and more formidable variety of thrush is often of an alarming and very malignant nature. This form of the disease would seem to depend on a general derangement of the system. It appears most commonly in the winter season, and is endemic in most situations and in humid countries, is most frequently to be met with in crowded families, and among the poor, and is occasionally a visitor, under this more malignant type, epidemically amongst the infants of lying-in hospitals. The period at which it usually makes its attack in this form, is about ten days or a fortnight after birth, but earlier in many cases. Its invasion is preceded by symptoms of pyrexia and great prostration of strength. The fever is ordinarily ushered in by a state of great inaction and stupor; the child is observed to sleep continuously for many hours. In twelve or twenty hours after this febrile attack, small pustules make their appearance within the mouth and about the edges of the lips. When the pulse, although before not distinguishable, becomes more perceptible to the touch, the eruption becomes more complete. The pulse subsequently becomes gradually firmer, and at the same time a complaint in the bowels supervenes, accompanied by a degree of oppression and a difficulty of breathing, and sometimes by a continuance of the drowsiness which had presented itself at the

commencement of the disease. When the aphthæ are nearly out, especially if they be of a good white colour, and the pulse should rise and become firm, accompanied by a general warmth diffused over the greater part of the body, we may ordinarily consider the danger as being in a great measure over. In some of the worst forms of aphthæ, convulsions supervene; when the eruption presents, it for the most part assumes a dusky hue, after which it soon becomes livid and quickly fatal. In hospitals, and more especially in some of the extensive hospitals in Paris, this malignant form of thrush has occasionally committed dreadful ravages. Its great fatality in these cases led, some years ago, to the publication of some of the most excellent essays which we find recorded on this subject. See vol. viii. Mem. of the Royal Medical Society of Paris. This worst form of the disease may no doubt, in a great number of cases, be traced to the influence of contagion. But, on the other hand, it is scarcely to be considered less certain, that cases of the milder form of thrush, when surrounded by circumstances of filth and insalubrity, may be exasperated into forms of great danger and malignity.

From the bowels being affected in this disease, it has been supposed that, in some cases, it begins in the stomach, and gradually extends upwards along the œsophagus, and downwards along the intestinal canal. In other cases, it is supposed to begin in the mouth and fauces, and to creep downwards along the whole course of the alimentary tube, even as far as the anus: and the small spots about the anus, the result of the irritation of the acrimonious evacuations, accompanying the disease, would appear to give countenance to this opinion: but inspection of many bodies after death, entitles the author to assert positively that this is not the fact. The prognosis may generally be considered as favourable, when on the falling off of the first crop of the eruption the pulse rises, the expression of countenance improves, and no convulsions supervene.

In this form of thrush, our remedies must be chiefly constitutional. The first indication, according to the practice of some of the most eminent foreigners, should be to exhibit an active emetic. For this purpose, a small quantity of ipecacuanha powder, amounting to from four to five grains, should be forthwith exhibited, and this should be immediately followed, in cases of extreme depression of the powers of life, by a teaspoonful of good white wine; a mode of exhibiting an emetic under these circum-



stances which the author deems preferable to the use of the ipecacuanha wine of the shops, as being more to be depended on for the operation required of it. After the full action of the emetic shall have passed off, three or four grains of calomel should be exhibited without loss of time, and be followed, in about four or six hours afterwards, by a teaspoonful of castor oil. But the rectum might perhaps be sooner discharged by gentle laxative clysters. The other principal indication is to support the strength; and for this purpose we begin early with the administration of cordials, such as white-wine posset, compound aromatic spirit, and such quantities and preparations of bark as the stomach of the infant might be expected to retain. With the same general intention, the tincture of bark might from time to time be exhibited by the rectum, in the form of an enema, with mucilage of starch. If these means prove insufficient, if the child continue feeble, with coldness of the extremities and no perceptible pulsation at the wrists, together with a death-like appearance of the countenance and much oppression in the breathing, we should consider the propriety of applying a blister behind one or both ears. In the midst of circumstances of this description, it is obvious that we must be very guarded in our prognosis, it being probable that the child's life might be speedily extinguished in a paroxysm of convulsions.

As to the local treatment, we cannot well expect, in cases of malignant thrush, to succeed in removing the aphthæ by any topical remedies, until the thrush is about to separate spontaneously as the result of constitutional action. As, however, families will generally feel more comforted if supplied with local applications of an innocent nature, there can be at least no harm in indulging them. For this purpose Van Swieten, whose residence furnished him with great experience in the treatment of malignant thrush, was in the habit of prescribing sirup of turnips. The most common remedy in this country, as has been already stated, is borax, in the form of a saturated solution in water or mixed with honey or sirup. Some writers have used it in the form of a small portion of it in powder put upon the tongue, and have supposed it to produce, when so used, a better effect than, from its sensible qualities, could have been expected from it.

OF DENTITION.—The constitutional changes incident to the first dentition may be considered as properties essentially connected

with the gastric functions, and as phenomena inseparable from the actions of the mucous membrane.

Dentition is generally attended with considerable irritation, and often indeed constitutes the first pain of consequence which an infant has to sustain. But the pain and irritation are in very different degrees in different individuals. The most usual period at which the pain and irritation of teething commence is about the fourth month. The process continues from that time till about the eighteenth, or twentieth, or twenty-fourth month. The common progress is as follows:—The two middle incisores of the lower jaw first appear, one generally about a week or ten days before the other. But before they make their way through, the gums are seen swollen and more than usually lubricated with saliva. About this time the infant endeavours to put everything into its mouth, frequently bites the nipple, and the saliva is obviously secreted in greater quantity, the mouth at the same time feeling hot and appearing as if irritated by inflammation. About the same period the bowels are often deranged, the child being affected as if suffering from a cold. Eruptions now and then appear upon the face, especially high upon the cheeks; the little subject gradually losing its colour and wasting in its flesh. The gum is raised into a ridge or rapha along its middle, on each side of which the teeth can be seen shining through, more or less distinctly. After having cut their way through, the child soon recovers its usual cheerfulness and healthy appearance. Having enjoyed an interval of about a month or six weeks of freedom from irritation, the same assemblage of symptoms again return, and the two corresponding incisores of the upper jaw appear. After a similar interval of about the same duration, the two first molares of the lower jaw, and soon after them those of the upper jaw, cut the gum. Between the sixteenth and the twentieth month the cuspidati appear, and from that period to the twenty-eighth or thirtieth month, sometimes as early as the twenty-fourth month, the posterior grinders make their appearance. So that the child is usually in possession of all its first set of teeth before it is two years and a half old. All these teeth exist ready formed in the foetus.

The morbid symptoms induced by teething are, 1st, those of local irritation; and, 2ndly, those of the general system. The symptoms of local irritation are inflammation and swelling of the gums, with increased secretion of saliva. The affections of the

general system are, eruptions of the skin, wasting of the flesh, cough, diarrhoea, vomiting, ophthalmia, and convulsions. We judge of any general affection of the system by the previous history of the case. If, before the general derangement of the system, the child shall constantly have rubbed its gums, salivated much, have had griping pains in the bowels, and often bit the nipple, we may rest assured that the derangement is in consequence of teething, and we are confirmed in this opinion by examining the mouth, the teeth in many instances presenting themselves strongly within the gum, SOMETIMES EVEN FOR MONTHS before their entire protrusion. Hence an inexperienced practitioner may be easily deceived as to the time when a tooth is likely to perforate the gum. When not very likely to make its way speedily through, the gum covering it is observed to be quite thick, and not at all put upon the stretch, and there is a very regular ridge along the middle of it. But, on the contrary, when near at hand, the gum above it is quite raised, more or less perfectly transparent, and instead of a regular ridge over the protruding tooth, this rapha disappears, and the upper part of the gum assumes the form of an elevated convex surface, having an indistinct resemblance to the elevation of a small blister.

OF THE TREATMENT.—When the symptoms are quite mild, when the irritation and fretfulness are moderate, we have very little to do. We then attend simply to the state of the bowels, taking care however that no drain, whether natural or from accidental excoriation, should be allowed suddenly or incautiously to be suppressed. The diet should be either exclusively the mother's milk, or that aided by frequent supplies of good gravy, or, at least, of strong beef-tea, cleared from fat. In the mean time, frequent exercise in the open air, without allowing the child to be chilled through by too long exposure to its action, should be enjoined. The process of protrusion may be promoted by mechanical pressure, by allowing the child to have something where-with to rub its gums. For this purpose a wax candle, or a piece of liquorice-root, or of a tough crust of bread, not likely to break, will be found both safe and useful. The harder substances not unfrequently used, such as coral, ivory, rods of glass, etc., are improper, from their tendency rather too much to bruise the gum.

When the local irritation is very considerable, and when especially the symptoms of general derangement are urgent, we



must have recourse to incision of the gums. This practice is safe and easy, and can be repeated as often as necessary; and even should the incision be followed by a cicatrix before the tooth might protrude, the objection would be of no manner of importance. On the accession of convulsions, this is the only means in our power by which we could ensure the preservation of the child's life. In every case of this kind we should therefore urgently advise the cutting of the gum. This is best done, of course, by a proper gum lancet. We should cut in a direction not immediately on the line of the ridge, but upon the body of the tooth, somewhat anteriorly to it. This remark applies exclusively to the single teeth. When the gum covering the double teeth is to be cut, the incisions are to be made crucially from corner to corner inclusively. No edge or angle of tooth should be left even partially covered by a membrane, through which it should be permitted most freely to make its escape. The most convenient mode of performing the operation is by placing the head of the child upon and between the thighs of the operator. This position of the little subject will give to the practitioner ample power to examine accurately his case, and freedom to do all that may be necessary for its relief, without the chance of failure or of successful resistance to his intention. When much irritation remains after this operation has been performed, for it generally gives immediate relief, we must have recourse to bleeding by leeches, or by cupping-glasses, according to the quantity of blood required to be abstracted. If convulsions are threatened, the mode of taking blood by cupping would be preferable to the employment of leeches. In full and plethoric children, especially if during the hot weather of summer, it will be both safe and useful to effect the abstraction of from three to four ounces of blood, if we suppose the child is cutting either its canine or double teeth. Should the cephalic symptoms continue still to threaten, it might be advisable, after the drying up of the bleeding consequent upon the cupping or the leeches, to apply a largish crescental blister behind one or both ears. The bowels should, in the mean time, be kept in an actively solvent state by full doses of calomel. The author presumes that much of the danger of dentition depends upon an accompanying torpid state of the hepatic system, and he therefore considers that the exhibition of calomel in the cases under consideration on a vigorous scale should form a most important part of the treatment. He

often, therefore, prescribes calomel powders to be given every three or four hours in the doses of from two to four grains, according to the age and other circumstances of the child. The irritative fever accompanying dentition may often be greatly subdued by having recourse to the warm or tepid bath. The cold-bath has been recommended under the same circumstances by Dr. Burns; but this is not always a convenient mode of reducing the temperature of children, as it sometimes is found to make too great an impression on their fears; whereas, ultimately the warm-bath produces the same effect without being attended by the same inconvenience. We should repeat the warm-bath, or any bath which may be deemed advisable, not only morning and evening, as has been too frequently recommended, but from time to time every four, five, or six hours, according to the demands of the case, measuring that demand by the slowness or quickness of the re-accumulation of the morbid temperature to be subdued. In the event the head should remain after these measures obstinately more elevated in its temperature than other parts of the body, measures should be forthwith adopted to reduce its excess of heat. The reader must here be referred to descriptions of modes for reducing the temperature of the head, already several times given in the course of the present work. Should a case of dentition be accompanied for a long time by an exhausting diarrhoea, that symptom should be obviated by inducing a more healthy action of the intestines by means of repeated doses of calomel.

It may deserve consideration as to how far it might be safe, under these circumstances, to have recourse to opiate injections. It is certain that a very great number, if not the majority, of children who die from dentition, perish in consequence of obstinate or neglected diarrhoea.

Spasmodic affections of the larynx and trachea, which not unfrequently accompany dentition, are too frequently intrusted to trifling and temporising treatment: such as having recourse to the occasional use of the warm-bath, and to the exhibition of quack medicines. They form, however, an important symptom, requiring, for the most part, free lancing of the gums, active purging with calomel, and not unfrequently abstraction of blood on an effective scale and commensurate with the supposed pressure of the symptom. It would occupy too much of our present opportunity to go at greater length into a description of all the symptoms of dentition, but one general rule may be laid down

for our conduct in the management of all of them; namely, to treat them actively on the general principles we have just recorded, with the additional practice of lancing the gums.

### III.—OF THE CIRCULATION OF BLOOD IN THE FŒTUS, AND SOME OF ITS PRINCIPAL DERANGEMENTS.

At the period of birth, singular and important changes take place in the circulation of the blood, which are the necessary consequences of the new medium in which the infant has now to exist. The supply of arterial blood up to the time of birth is derived from the mother by means of the placenta, though it is still a disputed point whether any of the parent's blood passes directly into the circulation of the fœtus, or whether the blood of the latter merely becomes changed in its circulation through the placenta from venous to arterial blood, by deriving from the vessels of the maternal portion oxygen and other matters, which may be necessary to render it fit for the nutrition of the new-formed being. When, however, the child issues from the parturient passage, it comes in contact with the atmosphere, which affords it an opportunity of effecting the necessary changes in the quality of the blood through the medium of the lungs. At this time the communication with the parent is cut off by division of the funis. The blood which formerly passed from the right auricle of the heart through the foramen ovale into the left auricle, and through the ductus arteriosus into the aorta, is now invited by the suction-power produced by the new action of the respiratory muscles, to pass along the pulmonary arteries into the lungs; and it is at the same time compelled to flow in this direction, by the gradual filling up of the foramen ovale and obliteration of the ductus arteriosus; and thus the pulmonary circulation is established. It happens, however, occasionally, that, owing to some interruptions in the natural process, the changes above-mentioned are not perfected; and this proves a serious calamity, soon producing general disorder of the vital functions, and, amongst other symptoms, a peculiar blueness of the skin. The symptom has been elevated by authors into the situation of an idiopathic disease, called MORBUS CÆRULEUS by the older writers, and CYANOSIS by those of the present day. Under this term are included the various effects produced by the arrest of development in the circulatory apparatus now under consideration, as well as the blueness of the skin which arises from other causes. It is not difficult to



understand how the imperfect obliteration of the foramen ovale and ductus arteriosus gives rise to the discoloration, as it is evident that two large columns of venous blood, which should be sent to the lungs for the purpose of aeration, pass at once into the general circulation without sustaining the proper change. The whole of this blood is in a state unfit for the purposes of life, and as it forms a considerable proportion of the quantity in circulation, the system soon begins to suffer, nutrition is impeded, great debility ensues, and a portion of carbonaceous matter is deposited under the skin, giving rise to the blue colour, so characteristic of the organic defect. The discoloration almost always takes place immediately after birth, and is increased and attended with difficulty of breathing whenever the child is in anywise agitated, whereby it is also disposed to throw itself into the horizontal posture, and from this state the infant is very liable to become convulsed.

All the above-mentioned disorders would arise in an equal degree from imperfections of the septum between the ventricles of the heart; also in cases where the aorta communicates with both ventricles: and instances of both have occurred.

If the aperture be in the ductus arteriosus, the patient in most cases soon sinks under the complaint; but if the aperture be in the inferior parts of the heart, infants more commonly survive for months, and even for years; being peculiarly subject, however, to pulmonary disorders.

As it is out of our power to remove the cause of the mischief, our efforts for relief are wholly confined to palliatives. From instances which have occurred to Breschet, Bertin, Fouquier, and others, it seems most probable that the deposition of the blue matter arises more from the feebleness of the cutaneous circulation consequent upon the general debility, than from the highly carboniferous state of the blood; and Mr. John Hunter proved by experiment, that if the circulation of an artery be impeded but for a short time, the blood lost its arterial hue, and acquired a purple colour. In all instances of extravasation the parts present the same aspect. This consideration points at once to an indication for treatment: viz., to use means for determining energy to the surface, in order to promote the circulation in the cutaneous capillary vessels; and this especially should be attempted during the occurrence of a paroxysm. Warm-baths containing mustard and ammonia, exciting frictions, and gently

stimulating drinks, are among the best means for effecting our purpose, and we understand that they have been successfully used in America. *New York Med. Repos.*, vol. i. art. 8, p. 496. The bowels should also be kept in a soluble state by mild aperients. It is manifestly an object in these cases to gain time, and if we can prevent the more immediately fatal consequences of one convulsive fit, nature has an additional opportunity of repairing the original mischief.

#### IV.—OF CERTAIN DISORDERS OF THE RESPIRATORY SYSTEM.

We have already observed that defects and derangements in the circulating system tend constantly to produce irregularity and mischief in the function of respiration. In addition to this, experience teaches that the period of infancy is peculiarly liable to inflammations of the trachea, bronchi, and air-cells. These several affections therefore demand a notice in this work.

OF CROUP.—This disease, called by Dr. Cullen *CYNANCHE TRACHEALIS*, and by pathologists of the present day *TRACHEITIS*, is frequently met with in children from the age of one to nine years, and sometimes, but not often, during the period of lactation. Infants, however, who are brought up by the hand, are occasionally the subjects of this affection at various intervals during the first twelve months. The disease consists essentially in acute inflammation of the mucous membrane of the trachea, which extends more or less upwards into the larynx, and downwards into the bronchi. It causes very rapidly the internal surface of these canals to be lined with a tough membranous exudation; which, as it diminishes their calibre, threatens the patient with suffocation, and induces violent coughing together with efforts to expectorate; by which it harasses the little sufferer, and increases the mischief by determining more blood to the inflamed parts.

The disease occasionally is attended by well-marked precursory signs, consisting of short cough, slight hoarseness, difficulty of breathing, flushed face, restlessness, slight rigors, quick pulse, and anxious countenance: but not unfrequently its commencement is very sudden, and its progress awfully rapid. A robust child in high health will go to bed without the least sign of disorder, having eaten heartily its usual evening meal, and will sleep soundly till perhaps two or three o'clock in the morning; when its nurse is awoken by its crying and the ominous ringing of the characteristic cough, and when also she will discover the existence

of the other symptoms above enumerated. The cough is very peculiar, having a harsh metallic sound. After having been once heard and recognised, it can never afterwards be mistaken or confounded. As the mischief advances, the symptoms become more marked, the difficulty in respiration constantly increases, the voice is either altogether lost or quite altered, the colour of the face assumes a livid hue, and a cold perspiration is seen on the forehead and around the eyes; the eyes are prominent and often suffused, whilst the head is thrown backwards, and in the extended neck are seen the strongly pulsating carotids and overloaded jugulars. During the day it often happens that there is a remission in the severity of these symptoms; but as the evening again comes on, they return with accumulated force to prosecute their destructive work; and if decided measures be not adopted to arrest their progress, the case will rarely fail to terminate fatally.

As soon as the disease is ascertained to exist, no time should be lost in resorting to the proper remedies; which in all cases, in the first instance, must be of a depletory and antiphlogistic nature; however, the extent to which they must be used will have to depend upon the age of the patient, his constitution, and temperament. Robust, fat children, with rosy cheeks, are, according to the author's experience, those most liable to the malady, and have it in its most severe forms. In such cases, if the inflammation has made any progress, and the child is two years old or upwards, the operation of venesection should be resorted to, and from five to nine or ten ounces of blood, according to the age of the child, should be abstracted without loss of time. In addition to this, some leeches should be applied over the trachea and larynx, and, upon their removal, a warm poultice. At this period great good is produced by immersing the lower half of the body in a hot-bath; by which a copious perspiration is induced; and the effect may be kept up by an emetic, consisting of from half a grain to one grain of tartarised antimony, dissolved in some sugar and water. The use of these remedies will often be sufficient to cut short the disease, after which we have only to combat its effects. When, however, the diseased action shall not have yielded to the foregoing treatment, we must proceed at once to the use of mercury. From one to three grains of calomel may be given every one, two, or three hours, according to the circumstances of the case; and at the



same time, the strong mercurial ointment may be rubbed into the arms and legs, until the system shall become sensibly affected by it. A blister may also be applied over the upper part of the chest. Mercury is an especially valuable medicine in these cases, as it immediately tends to control the inflammation and to arrest the secretion of the adventitious membrane, as well as to induce the absorption of the latter when produced. The emetic also seldom fails to restore the natural secretion of the mucous membrane, and so to loosen the adhesive substance which lies upon it; whilst the effort of vomiting enables the patient to reject it after it shall have been separated.

It seldom happens that the most violent attack can resist the means of cure now pointed out, if they be applied before the vital powers of the sufferer begin to fail: but there is still much to be done even after the acute symptoms shall have been subdued. The difficulty of breathing may be lessened, and the state of the tongue and of the countenance may be improved; but there will still inevitably exist much general fever and irritation. The cough, moreover, though it be improved in its character, will continue for some time troublesome, and the dyspnoea will recur in frequent paroxysms, from the great tendency to spasm which now exists in the injured parts. Our next objects therefore will be to allay fever and spasm, and gradually to begin to support the patient's strength. For a child of two years old, the following prescription will be found well adapted to meet those indications:—

R. Potassæ Chloratis, gr. xv. Acid. Hydrocyanici, gtt. ij.  
Syrupi Rhæados, ʒij. Aquæ Menth. Viridis, ʒiij.  
M. ut fiat mistura.

Detur pars sexta 4ta quaque hora.

Bread and milk, beef tea, and arrow root, will now be suitable food. In children of a lymphatic temperament, the progress of the disease is less rapid, and the symptoms less severe; the treatment therefore must be proportionally milder. The general bleeding might then probably be adopted on a more moderate scale, whilst care should be taken that too much blood be not allowed to flow from the orifices of the leech-bites, as the patient might be reduced by it into a state of dangerous exhaustion. If the attack is not very severe, and is discovered at its very commencement, the mischief may be almost positively arrested by applying a sponge dipped in very hot water to the outside of the

throat ; or, with the same view, a poultice made of warm onions or turnips, with the addition of a very small quantity of mustard, might prove a very useful application. The author has seen such remedies, combined with the hot-bath and an active purge, arrest the progress of the disease. It often happens that a chronic irritation will remain for some time about the muscles of the trachea and larynx, producing cough ; and on exposure to cold there will be a recurrence of the croupy cough, without being accompanied with the violent symptoms of the first attack. In such cases the pulse will not be remarkably quick or full, nor the general heat much raised. To relieve this condition, it is not necessary to have recourse to very severe measures : an emetic will often prove sufficient, or in worse cases a few leeches applied along the course of the larynx and trachea. When the disease has been neglected, and remedies have not had time to produce their effect, and the patient seems to be on the eve of suffocation, tracheotomy has been advised : but less success must be expected from the operation in this case than in laryngitis, where the inflammation is confined to the higher parts of the windpipe. Having now stated the leading facts of importance connected with croup, we will proceed from the trachea to the bronchi, and briefly consider such of its lesions as are of common occurrence during infancy.

OF BRONCHITIS.—INFLAMMATION OF THE BRONCHI occurs very frequently as a complication of MEASLES, and also during DENTITION : but it may likewise be an idiopathic affection, the result of exposure to cold and other analogous causes. In all these varieties of the malady, its symptoms, course of progress, and termination, are much the same, and the treatment must be identical. In MEASLES, the whole extent of the mucous surface from the eyes and nose to the air-cells of the lungs is the seat of a catarrhal inflammation ; which indeed constitutes the chief object of the physician's anxiety during the period of greatest danger of this very frequent and epidemic malady. In a majority of cases it is allowed to terminate by resolution, without the employment of any active remedies ; but occasionally the inflammatory action runs so high, as to demand the same active treatment as when bronchitis occurs from any other cause. The general symptoms are at first, a constant dry cough, which the patient endeavours to shorten and suppress on account of the soreness and sense of constriction which are felt at the chest ;

short and quick breathing, flushed face, staring eyes, very rapid pulse, great heat of the skin, thirst, nausea, and vomiting, together with headache, indicated by throwing the head about and the hands above it, as well as by its unnatural heat. The physical signs are not less important, and should always be attended to. Percussion will scarcely give more than negative information of the state of the chest. But this may be valuable, as it serves to distinguish bronchitis from peripneumony. Auscultation, however, never fails to throw light upon our path in this disease. By observing the amount of mucous and sonorous rattle, especially the frequency and extent of the latter, we are enabled to determine very satisfactorily the amount of the mischief, together with its limits and locality. The character of the respiration under these circumstances is a good indication as to the extent or magnitude of the mischief. If there be much inflammation and consequent filling-up of the calibre of the tubes on one side or in one part of the pulmonary system, the air in the parts less affected passes with great rapidity, producing a loud shrill sound, which, occurring in the adult, is called puerile respiration, but which term is of course less applicable to this condition in the child. We have now gone over the chief symptoms of this particular disease, and they point pretty expressively to the means of cure. The inflammatory action must first be combated by the abstraction of blood, and this is generally effected either by the application of a good many leeches to the upper part of the chest, or by cupping from between the shoulders: if the first use of this remedy do not seem to control the mischief, the latter should be resorted to. The more intense forms of bronchitis during measles require the abstraction of blood on a vigorous scale. The bowels should be kept freely open, and diaphoretic medicines will be found most useful in mitigating the heat and harshness of the skin. The same combinations of prussic acid and chlorate of potash recommended for the second stage of croup will prove useful in this attack; and after the vessels shall have been unloaded, a blister applied to the lower parts of the chest will be proper if the attack should prove obstinate. It too often happens however in this affection, that our best efforts prove fruitless. Owing to the vitiated supply of blood sent from the lungs to the brain, the latter organ becomes disordered, its vessels lose their tone, a certain amount of inflammation is produced either in the membranes or the substance of



the lungs themselves, effusion ensues, the vital powers of the child are not sufficient to cope with both diseases, and do whatever we may it falls a victim to their combined effects.

OF PERIPNEUMONIA.—Inflammation of the air-cells themselves is not an uncommon malady during dentition, although it is difficult to understand how the latter should give rise to the former. This affection is sometimes complicated with bronchitis; but it more frequently occurs alone, and is quite a distinct disease, and easily recognised by its physical signs. The general symptoms, however, of it and inflammation of the bronchi are not very different. In the former the face is generally pale, while in the latter it is flushed. In peripneumonia the sputum is viscid, and has a rusty tinge; while in bronchitis it is frothy, and often seems as if mixed with a small portion of soot. But these last signs are not valuable in cases of children, as they seldom reject this secretion from the mouth. If percussion is employed over a part of the chest where inflammation of the air-cells has existed long enough to have thickened their coats and filled them with the characteristic albuminous secretion, and to have caused thus consolidation of parts which ought to be light and porous, corresponding results are produced in the sounds afforded. Instead of loud resonance, a dead short sound is heard when the part is struck; and if the stethoscope be applied, the crepitus rattle is a sure and certain evidence of the actual mischief within.

Having determined the nature of the mischief by these means, we have next to employ the curative remedies in our power. When peripneumonia or bronchitis seems to be connected with the irritation of teething, and we find the gums swollen, red, and transparent, we should as a first measure employ the gum-lancet freely. At this period of life, bleeding from a common vein is scarcely practicable; we must therefore apply leeches, and follow these up by a blister, which it would be best to apply immediately to the part affected. It is also desirable to employ mercury until the mouth becomes slightly affected: but the operation of this medicine should always be carefully watched, as ptyalism in children is sometimes attended with serious consequences. The general treatment here is much the same as that of the preceding disease; and as in that a fatal result often takes place secondarily from an affection of the brain, so is it too frequently the case in this almost equally dangerous malady. If the head is seriously and obviously affected, and the strength of

the child not too much reduced, it may be well to take blood from the jugular vein, the author having generally found temporary good at least to result from that remedy, though it too frequently happens that after all the life of the patient falls a sacrifice to the disease.

OF PERTUSSIS.—As whooping-cough is more frequently met with during infancy than at any other time of life, its consideration claims a place in this work. Like other infectious diseases, it very often prevails as an epidemic. Not only does it pass successively through different members of a family, but a whole neighbourhood is simultaneously affected by it. It comes on with the common symptoms of fever which attend the cough throughout its acute stage, and is proportioned to the severity of the attack. In a very large number of cases, no treatment is employed, and the little patients are allowed to follow their ordinary pursuits; coughing with the peculiar whoop, and vomiting at frequent intervals during the day, until the disorder subsides spontaneously. But neglect of remedies in this affection is by no means justifiable; as the cases are not a few where the inflammatory action runs high, and well-marked specimens of bronchitis or peripneumonia appear; which, for want of active remedies in the beginning, may, and often do, terminate unfavourably, either owing to the exhaustion of the patient's strength by the lesion in the chest, or by secondary symptoms occurring in the brain or its membranes. In all cases, however, it is proper to abstract blood in the first instance, and this should be done if possible from a vein of the arm, or by cupping freely. By this plan of treatment, the disease may in most cases be cut short, in a manner the profession are perhaps not generally aware of. If a child is too young to admit of the use of the lancet, and cupping cannot be obtained, leeches must be applied to the chest, though this is according to the author's experience decidedly an inferior remedy, as they have such a peculiar influence in depressing the vital energy of the subject, without subduing in an equal degree the force of the circulation. They must, however, be resorted to, even in addition to the use of the lancet, where the mischief is considerable. The same symptoms sometimes present themselves as those described in the account of Bronchitis and Peripneumonia, and they require to be combated by the same kind of treatment. But we must occasionally, in addition to the use of antiphlogistics, have recourse to

remedies which have a peculiar efficacy in relieving the spasm which forms so essential a part of this complaint. Hydrocyanic acid is one of these remedies, and may be advantageously administered in combination with the chlorate of potash in the form already pointed out in our treatment of croup. Emetics are very commonly used, and have a beneficial effect in relieving the stomach of a vast quantity of swallowed mucus, at the same time that they produce diaphoresis, and by their effect on the general nervous system allay the local spasm of the bronchi and larger air-passages. When the acute inflammatory action has been entirely subdued, the tincture of lobelia inflata is a useful antispasmodic, but if administered too soon it increases the mischief.

After the acute part of the case is over, there is also another valuable remedy, viz. alum, which may be given to children of three or four years in doses of seven grains three times a day with great advantage. It has a powerful effect in checking the inordinate secretion from the mucous membrane, at the same time that it allays the spasm. A great number of palliatives are used with more or less benefit to the patient. But having within our reach the remedies already mentioned, we shall have little occasion to recur to others of inferior power; which may prolong the period of attendance on our patients, but cannot in any way tend to increase the practical efficacy of our curative efforts.

There is yet a disease of the air-passages occasionally met with in children which deserves a notice here. It is what has been termed CORYZA MALIGNA OR MORBID SNUFFLES. The latter name is descriptive of the noise attending the respiration of an infant suffering from this malady. It occurs usually about the first or second week after birth, and sometimes the infant has seemed to be born with it. The discharge from the nostrils which constitutes the affection here alluded to, is of an uncommon character, quite distinct from that observable in ordinary colds, and purulent from the beginning, although it afterwards becomes sanious. During sleep the secretion, which is copious, arising from the whole extent of the mucous membrane lining the nasal fossæ, antrum Highmorianum, etc., gravitates towards the glottis, which it obstructs, thus producing difficult breathing, which is also the case when the infant sucks, and occasions violent coughing and much uneasiness. The cause of this morbid discharge undoubtedly is inflammation of a peculiar kind of the affected mucous membranes, which runs its course and commonly subsides in two or three weeks: but before the end of



that time much general disorder has been produced, both by the local irritation and the purulent matter carried into the alimentary canal. When nothing has been done to relieve it, the strength of the patient has frequently proved insufficient to cope with the disease. When the inflammation commences, the nostrils and surrounding parts are tumid, shining, and of a livid hue. At this period a cooling lotion may be applied externally with advantage; but the remedy spoken of as being of most importance by Underwood and Denman, who were among the first to direct attention to this disease, is frequently to relieve the *primæ viæ* by purgative medicines of their morbid and unnatural contents. As the patient is often quite unable to obtain a sufficient supply of food by suction, it should be fed with a spoon; and the mother's milk may be exhibited to it when necessary in this manner. When the discharge assumes a chronic character, infusion of cinchona or the sulphate of quinine should be administered, and this treatment has often been found to have an immediate effect in subduing it.

V.—OF SOME OF THE MORE IMPORTANT DISEASES OF THE BRAIN  
AND NERVOUS SYSTEM.

Of the maladies under the present class of diseases, especially incident to children, the convulsions of early pregnancy present themselves as among the most important. Convulsions are, indeed, very frequent as well as important diseases of children. They occur during the earliest ages, and in various degrees of violence. In some cases, there is merely a degree of spasmodic affection of the lips, with clenching of the hands and turning in of the toes. These are followed by a temporary deliquium, in which the countenance is a little altered, and from which the child soon recovers. Mild forms of this kind of spasmodic affection are often by nurses called inward fits; whereas some authors have described those fits to be a slight spasmodic affection, in which the mouth during sleep is drawn into a smile, the eyelids in the mean time not being quite closed, and the eyes rolled upwards so as to discover the white, the breathing seeming occasionally to flutter, and the child to be easily startled. The milder forms of spasmodic affections are, in many cases, succeeded by unequivocal contractions or convulsions more completely developed. On such occasions the child may be observed to stretch out its body, and to extend rigidly its back. The face is seen void of colour, and the lips to

be deeply livid or black; the eyes at the same time to be turned up, so as to give the appearance of death. In a few minutes the fit goes off, and the child recovers with a violent motion of its feet and hands. In some cases these convulsive affections of children resemble in no inconsiderable degree an epileptic paroxysm, the lips being livid, the eyes fixed, the pupils greatly dilated, accompanied by foaming at the mouth. These more violent fits are sometimes known to last from half an hour to an hour, and occasionally even for two hours. In these their worst forms, they often prove quickly fatal. In other cases they come on more gradually, are preceded by the slighter symptoms called inward fits, and lapse, after many hours or days, into the more decided muscular contractions, constituting ordinary convulsions. In regard to the frequency of recurrence of convulsions in children, subsequently to their being first instituted, there is a remarkable difference in different cases. In some, they return as often as every half-hour; while in others, only once perhaps in four-and-twenty hours, or even in two or three days. In most cases, when the fit is gone off, the child cries violently, but gradually again recovers the full possession of its consciousness, and in some degree its previous cheerfulness; not, however, without being affected for some time afterward by a degree of languor and depression. It often happens, indeed, that a child, after having suffered repeated attacks of convulsions, will appear pale and sickly for many days or weeks, with its flesh soft and flabby. In other cases, a degree of stupor remains for an uncertain time after the convulsions are gone off.

OF THE PROXIMATE CAUSE.—In all cases of infantile convulsions, our prognosis should be very guarded; it being impossible to say whether the child may recover or not, as one single fit may perchance carry it off; while at other times, after causing the greatest alarm, it may completely recover. The proximate cause of the malady is probably some morbid affection of the cerebral system, although we are not competent to speak positively as to its nature. One condition essential to it is doubtless an increased determination of blood to the head, or an undue expansion of what may be already there, by reason of an increment of its temperature; over-excitement of the heart and arteries is a state of the circulation which, experience proves, contributes towards that susceptibility which forms the predisposition to convulsive diseases of children.

Among the EXCITING CAUSES of convulsive diseases in children, may be enumerated all the following circumstances, and probably many others:—The irritation attendant upon dentition, both directly from the pain of the gums, and also indirectly from the irritation occasioned by it to the intestinal canal, irritation in the alimentary tube from whatever cause, indigestion from unsuitable food productive of costiveness, flatulence, acidities, bilious or other acrimonies, etc. Sucking a nurse having her circulation in a state of excitement, or her mind in a state of agitation; irritation from the presence of worms in the intestines, suppression or diminution of accustomed evacuations, sudden retrocession of cutaneous eruptions; that peculiar state of the nervous system immediately preceding eruptive fevers of the exanthematic kind, and other acute diseases; residence in impure air, exposure to the influence of mechanical injuries.

The great general principle of treatment in the cure of infantile convulsions is the removal of the primary cause of the irritation. Emetics are to be administered to remove crudities of the stomach: but inasmuch as this treatment might not always be safe, lest the lower part of the intestines might be implicated by a state of costiveness, or the actual fact might not be sufficiently known to the practitioner, it might often be safer practice to empty the lower bowels in the first instance by means of an active enema. For young infants ipecacuanha powder is the best, because the mildest emetic. A solution of common salt will, however, answer this indication sufficiently well in the absence of the other remedy. A solution of from three to five grains, according to the age of the child, of the sulphate of zinc, is also a safe and useful emetic. When a child is seized with a fit of convulsions, great alarm is naturally excited in the family, and it is expected, immediately on the arrival of the practitioner, that he will adopt some very prompt and decided measures. The first thing to be done is to order an enema and a warm bath to be got ready. When these things are preparing, we inquire into the state of the gums and other circumstances of the case. If found necessary, we lance the gums effectually. This being accomplished, we order the clyster to be administered without loss of time; and, for the sake of expedition, this may be made with warm water and common salt, with the addition of a little olive oil or common butter. Next, we put the child in a warm bath up to its chin. Here it should be observed that the bath



should be delayed till after the bleeding, in the event of an overfulness of the vessels of the head, as in that case free bleeding should be the first measure to be adopted. The abstraction of blood from young infants is attended with some difficulty; the employment of leeches is often uncertain in its results, as the quantity obtained proves too little, and the efforts made to obtain it are found frequently to occupy too much time.

There are few medical gentlemen in general practice who can perform the operation of cupping with sufficient skill not to make that mode of abstraction of blood in urgent cases an objection to it. The opening of the jugular vein furnishes the most effectual outlet for the required evacuation, provided the medical attendant is willing to undertake it. The great object to be ensured is to take the required quantity of blood pretty promptly, which consequently will also speedily lay the foundation for a prompt removal of danger. The author wishes to observe that the application of one or two leeches to the temples, as is too commonly the practice with the profession in the treatment of the cases such as we are now considering, is really trifling with the greatest danger; and that if we are under the necessity of contenting ourselves with the employment of leeches, they should be applied in cases of infantile convulsions from overfulness of the head, at least in the number of from six to eight at once. In their application they should also be crowded within a narrow disk as near as possible to the external temporal artery immediately anteriorly to the ear. After an adequate abstraction of blood shall have been accomplished, it will deserve consideration how far it might be safe and proper soon afterwards to exhibit a mild ipecacuanha emetic. If this measure be not approved of, or deemed safe or useful, we should proceed at once to the exhibition of purgatives; and in order to ensure an early relief of the bowels without incurring the risk of adding to the danger of existing irritation, it might be advisable to premise in the first instance an efficient dose of castor oil. But we should consider that we are treating a case which will speedily require the more energetic influence of ample and repeated doses of calomel. The author considers that there are some cases of obstinate convulsion even of the earliest months where the spasmodic constitution, so to call it, is so intense that we could not hope to preserve the lives of their subjects without a very abundant use of calomel; it being at the same time to be remembered, that calomel is among

the mildest of remedies when administered to infants. We are usually in the habit of connecting a certain spasmodic affection of the larynx with dentition in very young children, and thence of recommending the thorough lancing of the gums as an indispensable duty. Dentition frequently exasperates the spasmodic affection in question; although this spasm may undoubtedly develop itself in its absence. Master D. was the subject of this symptom in an intense form in the seventh week after his birth. His older brother had died the victim of convulsions during the period of teething. The parents were naturally alarmed at the appearance at so early an age of the constriction of the larynx, which they considered to have destroyed his brother. There certainly in the present case was no irritation from teething. The child, however, appeared for its age somewhat full and gross. Its mother had been persuaded by her friends partly to feed it with SPOON-MEAT. When the author was first requested to see it, he found it in a partially torpid state and with difficulty could be roused. He advised the abstraction of three ounces of blood by cupping from behind the ears, the exhibition of an emetic a few hours afterwards, and ordered a smart purgative of calomel and jalap for next morning, and placed it subsequently on the use of calomel in the dose of three grains every three hours for about three days continuously from that time. It should have been observed at the commencement of the case, that the child had sustained two regular paroxysms of convulsions before he was made the subject of treatment by the present reporter of its malady. This little patient recovered perfectly in the course of about a fortnight.

Convulsions, as we have already seen, are greatly dependent in early infancy upon states which practically we impute with great reason to various states of irritation; and hence it has often been considered good practice to subdue such irritation by the exhibition of opiates. Many of the soothing sirups which it is too common to administer to children, have opium accordingly for their basis. The administration of opium however to infants is generally to be considered as a prejudicial practice, as that powerful narcotic has the very injurious tendency of constipating both the liver and intestines. Some authors have considered the use of opium in convulsions of infants so injurious as to warrant the entire deprecation of it. But there are few rules without exceptions. The following case will be considered an opposite illustration of the employment of opium in a case of

infantile convulsions:—Master E. D. when about five months old was seized with rather an unusual variety of convulsions. His bowels had been in a state of extreme constipation for several days, which was not only not reported, but positively contradicted by its nurse. Calomel in the dose of about four grains was prescribed for it. The rectum being plugged up by hardened fæces, a struggle was instituted during the operation of the medicine, between the action of the calomel on the one hand, and resistance to it on the part of the intestine; which probably would not have happened had the rectum been emptied in the first instance by means of an enema. During the disturbance in question, the child was thrown into convulsions. The variety of those convulsions was somewhat peculiar, inasmuch as they strongly simulated the convulsions of moribund animals under the influence of a galvanic battery, lasting only for a few seconds, leaving the child immediately afterwards in the fullest possession of its consciousness, and fully competent to anticipate with extreme terror the invasion of the next paroxysm. For several hours the fits were renewed about every six or eight minutes, producing great distress and alarm among the bystanders. At length finding no amendment from the assiduous bathings and frictions which had been pursued, and not knowing when to expect much positive advantage from the use of the various aperient and other medicines which had been exhibited, the author determined to administer to his little patient five drops of laudanum. The storm was forthwith allayed; and the case in the progress of the treatment terminated most happily. It might be useful to remark that a plethoric child should always have some blood drawn before it would be safe to give it laudanum; and as a general rule it would be better to avoid the exhibition of opium, excepting in cases of severe griping or looseness, or some other extraordinary irritation. As a substitute however for the internal use of opium, the spine might perhaps with some advantage be treated by friction with opium and camphorated liniment. Dr. Underwood strongly recommended the use of the oil of rue as a stimulant embrocation for a similar purpose. The author can recollect when blisters were extensively applied to the head in cases of convulsions of children; and he can also well remember that the treatment of such cases by those means, was not nearly so successful as is now our treatment of the same cases by the use of cooling and even refrigera-



ting fluids applied to the naked scalp, and by the use of the iced water bladder pillows already described in this volume as usually employed by him.

Epileptic convulsions of children of larger growth bear considerable analogy to those of early infancy already spoken of; although they are usually described as being more regular in their accessions, as presenting themselves in more marked paroxysms, as being more certainly preceded and succeeded by insensibility; by the symptom of foaming at the mouth; by great dilatation of the pupils; and by their seldom occurring until about the fourth year. Convulsions of this kind are to be treated generally on the principle of removing irritation; as in most cases they will be found upon inquiry to be the effect of causes of that kind. We inquire into the state of the chylopoietic organs; and if we discover any proof or cause of irritation there, we treat the case accordingly, first by an active emetic consisting of half a grain of tartarised antimony and from eight to twelve grains of powder of ipecacuanha; then with a full dose of calomel and jalap; and lastly, with repeated doses of calomel, to improve the secretions. If the irritation be from teeth irregularly cutting the gums at this period, free lancing should be resorted to. Convulsions sometimes are the results of decayed teeth. In such cases the stumps should be speedily and effectually removed. In strumous habits, convulsions are consequences occasionally of suppressed morbid discharges from sudden healing up of wounds, etc.

Those discharges might be beneficially re-established, or others substituted; or if either of these be deemed objectionable, the patient should be made the subject of active purging from time to time, for many days or weeks. Convulsions considered as the effects of bad general management or regimen, are to be remedied by judicious diet, by active purgative medicines, and possibly in some cases by a temporary change of residence. If dependent upon a feeble or cachectic state of the constitution in addition to the free use of mercurial remedies and purgatives, it may be useful to have recourse to the employment of tonics, such as bark, iron, vitriolated zinc, and sulphate of copper. The tepid bath may also be advantageously employed in the treatment of this form of convulsions. The author has no very high opinion of the substances usually called antispasmodics. Sea-bathing and marine residence, with a judicious regulation of the regimen

and general management, may greatly contribute to establish the patient's recovery.

OF HYDROCEPHALUS.—Hydrocephalus, as the term imports, consists in an effusion of serous fluid within the encephalon, and is the result of serous inflammation of the meninges of the brain. This effusion may be made either intermediately between the meninges and their general cerebral inclosure, or into the cavities of the brain called its ventricles. If of the former variety, it has been called hydrocephalus externus; if of the latter, hydrocephalus internus. An aqueo-serous discharge may be the result either immediately of a cephalic disease, or the ultimate effect only of an exhausted state of the whole system, as in general dropsy from exhaustion. The disease which the term hydrocephalus is employed usually to designate, is an affection more or less of an inflammatory character of the vessels of the brain and its meninges. But the term hydrocephalus embraces only the result of the morbid action in the same way as empyema expresses the result of acute inflammation of the thoracic viscera. Phrenitis hydropica might perhaps afford a better epithet to express both the morbid action and the tendency of this formidable complaint. Dr. Cullen has given it the designation of apoplexia hydrocephalica.

Hydrocephalus is one of the most dangerous and insidious diseases to which children are subject. It may come on at any period of the child's growth, from earliest infancy to the age of ten or twelve; and in town populations it is very apt to supervene during the earlier months of lactation, and on the onset and during the progress of the troubles of dentition.

It sometimes makes its attack suddenly in the form of an acute fever, at other times more gradually, when it may become protracted for many weeks or months. Hence pathologists have described hydrocephalus as consisting in two very distinct varieties, to which they have indeed applied the distinctive epithets of acute and chronic. Acute hydrocephalus usually begins like common fever, and is often preceded by lassitude and languor, denoting no little disturbance and irregularity in some of the most important operations of the system. At an early period, however, something of a determination to the head may be recognised by a closely observant eye, to be a prominent feature among the symptoms. Occasionally the conjunctiva of one or both eyes may be found to be more than usually injected. The

first well-marked symptoms of the disease are, a general pain of the head, either of one or both sides of the head, a sense of weight in the head or about the nape of the neck. It must, however, be acknowledged that the progress of this complaint is often very insidious. There is for some hours or days a general indisposition, a sense of uncomfortableness, a disposition to peevishness, a diminution or disturbance of the appetite, with occasional attacks of sickness or vomiting, the matter ejected being bilious. It may be often remarked, or ascertained upon inquiry, that the little patient will have been constipated for some time; especially subsequently to the commencement of his indisposition. At this time the child may be observed to sleep uneasily, to sleep with its eyelids imperfectly closed, the globes of the eyes occasionally rolling in different directions, and, during its imperfect sleep, to grind the teeth, and from time to time to start in surprise or terror. Under these circumstances, it will often awake suddenly and scream violently, as if under the influence of some great alarm. An indistinct febrile state, denoted by languor of the eye, flushed face, pain of the head, thirst, heat of the skin, etc. forms towards evening; when the malady is fully established. In other cases, however, and those by no means infrequent, the attack is more sudden and with scarcely any previous indisposition.

In this form of the malady, its progress is more rapid, and its character is more actively acute: its subjects are also the most lively and apparently healthy children. The attack commences with a distinct rigour or with alternate paroxysms of heat and cold. The child may then be seen to labour under symptoms of increased determination of blood to the head, and, if old enough, complains of a distressing headache, principally in most cases affecting the forehead, but occasionally one side of the head. In a certain proportion of cases, however, this symptom affects chiefly the lower portion of the occiput, or nape of the neck. The pain of the head is constant as well as severe, and the eyes, during the development of the disease, become extremely sensible in many cases to the impression of light upon them. During this stage of the malady, the pupils become much contracted, sometimes indeed very irregularly, indicating at once the irritability of the organ of vision, and the disturbance of its sentient and muscular powers. About this period, the young subject's condition is usually that of high fever, and a greatly excited



state ; the pulse beating with a quick, strong, sometimes a full and sometimes a hard and compressed stroke. Pressure still being made on the substance of the brain, the stomach becomes much disturbed, frequently rejecting its contents, and indisposed, at this period of the case, to receive any new supply. The tongue is white, like that of any other inflammatory fever. The bowels, if not excited by purgative medicines, are in most cases very torpid. In some rare instances, however, there is diarrhoea. In those cases, the stools are green and fetid. After the complete establishment of the disease, the body is ordinarily raised to an uniformly high temperature, so high indeed that the author has sometimes known it to have been elevated to 106 and 107 degrees of Fahrenheit.

After the above symptoms of an extremely acute fever shall have continued for several days, the second stage of the malady commences. This stage, however, supervenes sometimes sooner, sometimes later, in the progress of the complaint ; most frequently about ten days from the commencement of the indisposition. At this time the pulse, from before having been regular and not very greatly increased as to its frequency, becomes, in most cases, quick, hard, and irregular ; but, in some other cases, preternaturally slow and intermittent. On the pulse becoming slow, the pupils are seen to acquire a progressive dilatation, and sooner or later a double vision is instituted, and farther in the progress of the malady more or less of strabismus. In some cases, at this period, there is a considerable insensibility to the action of light. During the second or third week of the disease the muscles of expression, especially those of the mouth, are occasionally thrown into whimsical and almost ludicrous movements. The author has only known two patients to recover after having become the subject of this symptom.

In the progress of the disease, the intensity of the headache is gradually diminished, or its character becomes less positive and regular. The violent throbbing pain becomes less constant, although at the same time the little patient appears to have occasional attacks of the severest torture from the pain in the head. At this stage of its malady the child expresses its affliction by loud outcries and dreadful screams. In proportion as this change of character of the disease advances the appetite becomes more voracious, and often thus remains unabated during the entire sequel of the case, even to within a short period of its

termination. In some cases delirium supervenes early in the disease; in others the patient continues sensible and intelligent to the very last stage, or until the stupor makes its appearance. At length the symptoms of oppressed brain become more obvious and more urgent, the pulse becomes weaker but much more frequent; amounting in frequency to one hundred and sixty strokes in a minute, or even more. The strabismus, which was only occasional or moderate at an earlier period of the malady, becomes towards the conclusion a permanent and distressing symptom. At length vision is entirely lost, and sundry functional actions are abolished, so that the urine comes to be retained, or passed involuntarily, and the fæces to be voided without the control or consciousness of the patient. The retiring sensibility sinks into insensibility and coma, and the scene closes with stertorous breathing and convulsions. Convulsions, however, are not essentially an attribute of the last stage of hydrocephalus, as in some cases they have been known to usher in the malady, and in many others to have attended it in every stage of its progress. In some cases, again, we have convulsions only of one side, the other being either partially or entirely deprived of muscular power. Hence we occasionally meet with cases, in which the face is much distorted on one side, with one eye closed and the other open. Such are the principal symptoms of acute hydrocephalus.

The chronic form of hydrocephalus makes its attack with much less violence, and runs its course with less rapidity. In some cases it would appear to depend upon an original feebleness of constitution, the child exhibiting a character of languor and dulness from the birth. The head may be seen to enlarge much faster than it ought to do; and in some cases, indeed, this undue growth of the head is known to begin in utero. At other times the child would seem to be tolerably well at first, or even for some years; but its general health is observed to be but delicate, its complexion destitute of the strength of colour and floridness which indicate a perfect state of the functions, and the flesh destitute of firmness. With this predisposition the functions of the stomach may be observed to be subject to considerable irregularities, and the abdomen to be distended by swellings of the mesenteric glands. The appetite is sometimes almost greedy, although at other times very weak and squeamish. A child subject to this predisposition and constitution has dislikes for some

particular foods, of which other children are sufficiently fond ; or it may occasionally refuse what it is itself generally fond of. At other times food easily digested by the generality of children, and usually by the subject of chronic hydrocephalus, is suddenly and unexpectedly rejected by vomiting. In short, the whole of the chylopoietic system is liable in children of this temperament to frequent disturbances and irregularities.

It is, indeed, difficult to say whether this form of hydrocephalus is most to be attributed to morbid functions of the head in the first instance, or to irritations and irregularities of the chylopoietic viscera. It is generally very obvious that the process of digestion is but very imperfectly performed. The first obvious symptom of the disease is an unusual dulness of the eye, and of the expression of the entire countenance. A degree of feverishness may be observed to come on towards evening, and the child, if old enough, will from time to time complain of headache, accompanied by considerable fretfulness of temper. This headache will often exhibit itself in paroxysms of great violence ; or is constant, but less acute and distressing. The latter form is for the most part attended with anorexia, and the former by attacks of sickness and vomiting. The animal powers of the little patient recovering something of strength, he may show a disposition occasionally to attend to the winning attentions of his nurse to entertain him ; or, if older, to amuse himself with his playthings. He soon however finds himself fatigued by personal exertion, or even by the exercise simply of his faculty of attention ; the effort of looking on being more than his diminished powers are equal to keep up.

The headache becomes gradually more constant and severe, accompanied pretty obviously, when it cannot be expressed in words, by giddiness and confusion of vision. In this, as in the acute form of hydrocephalus, the painful affection of the head appears to have its principal seat in the forehead, although, in many cases, at the occiput, and even at the nape of the neck. The temperature of the body is but little raised in this variety of the malady in the first instance ; but as the disease advances, the skin becomes hot, and the pulse becomes more or less excited, and unequal both as to strength and frequency. In some cases, the action of the arteries becomes very slow at an early period of the complaint, but this forms not its general rule. The bowels are usually constipated on the accession of the malady, and for



the most part continue so during the whole of its progress. In some cases, the urine is voided with considerable difficulty, in small quantities, and not without pain. The above symptoms may continue for many weeks without indicating the actual existence of pressure on the brain, and some combinations of them may exist for months, without indicating a state of immediate danger. In the meantime, the child evidently loses its flesh, becomes more and more depressed in spirits, becomes more sickly and irregular in its appetite, more fretful and unmanageable in its temper, and subject to a more obvious and considerable accession of fever in the evening. From this state the patient may appear sometimes in a great measure to recover, although the bulk of his head, the general feebleness of his functions, and the unchanged delicacy of his frame, must afford very strong presumptive proofs, that water is actually being effused upon his brain. In general, however, in a few weeks, or at most in a few months, the symptoms of compressed brain become more distinct. The pupils are dilated, the patient begins to squint, the limbs become paralysed and convulsed, and the urine is suppressed, requiring the use of the catheter, or the power of retention becomes perfectly abolished. The pulse is at first slow and full, but gradually becomes weaker in the progress of the disease, fluttering and irregular. Stertorous breathing and coma advance in the sequel, and the patient is carried off in convulsions. The size which the head may acquire during the development of this disease is very uncertain, as it will generally go on increasing in magnitude as long as the subject of the case shall survive. The author recollects to have seen one case in which the head had attained the bulk, as was stated by the spectators of the malady, of four ordinary adult heads. Its subject was, at the time he saw it last, about six years old.

OF THE TREATMENT.—The preceding history of hydrocephalus has been in a great measure drawn up without constant reference to its best treatment, inasmuch as its materials have been collected from what the author has observed of its ordinary treatment and results in general practice, for the last thirty years. The reader, however, must not suppose that hydrocephalus is so essentially fatal in its nature as might be inferred from various statements made in the course of the above description. The cure of hydrocephalus must proceed upon the general plan that the disease is inflammatory, and, like other inflamma-

tory affections, is OFTEN to be subdued by energetic antiphlogistic measures. Our practice must indeed, be very decided as soon as the disease is sufficiently developed to exhibit even a positive predisposition to hydrocephalus. We must not think of trifling at the beginning. By a bold use of proper remedies at that time, when CONGESTION IS ONLY THREATENED, we may prevent the establishment of the malady. When there is pain of the head, even partial sensibility to the action of light, or the smallest amount of stupor, we should immediately have recourse to abstraction of blood on an efficient scale, such as might be warranted by the age of the child, and the early period of the disease.

If under the age of six months, probably in that case the result of painful dentition, the temperature of the head having already received positive augmentation, the least quantity of blood to be abstracted should be four ounces, either by cupping from the temples; or from the jugular vein by careful incision with a lancet. If the child be of a full habit and the head greatly oppressed, it might be safe to take away an additional ounce or two. It would be most satisfactory to bleed by cupping if it could be effected so as to produce deliquium. If the child be upwards of two years old; it would well bear the loss of from six to about eight ounces of blood. But here also it is to be understood that this evacuation is to be adopted at the very commencement of the disease. In children of a still more advanced age and at the commencement of the malady, as in the preceding cases, the operation of bleeding must be made available on a proportionally active scale; this scale indeed to be adapted to the attainment of an unequivocal deliquium animi.

As soon as the patient shall have sufficiently recovered after the bleeding, an emetic should be forthwith exhibited with powder of ipecacuanha simply to very young infants, and with the addition of tartarized antimony to children of larger growth. When the child shall have recovered after the action of the emetic, it should be treated as speedily as may be with a strong purge of calomel and jalap. These several measures having been employed, the practitioner will have to ascertain how far the bleeding and the other evacuations will have had the effect of reducing the increased temperature of the head. Should any part of the head be found still of higher temperature than natural, it will be proper immediately to give the requisite instructions for reducing it, by the application of cold lotions and the iced pillow, so

often described in our preceding pages. The next measure to be pursued, and that must not be long delayed, should be to exhibit calomel in frequent and ample doses until the liver shall be well purged.

The circulation at the commencement of this complaint is very apt to be found unequal as affecting the head and the lower extremities. The practitioner, therefore, whilst the temperature of the head is to be subdued, should not neglect to cause the cold lower extremities to be artificially heated by the application to them of a heated brick, or a bottle of hot water wrapped up in a blanketing of fine flannel. If the above measures are adopted at the very commencement of acute hydrocephalus, the author ventures to assert, upon the evidence of his own personal experience, that the disease will FREQUENTLY be subdued in the course of the first few hours. If, on the contrary, they should be delayed for the first two days subsequently to the invasion of the malady, they will often fail in their effect, but nevertheless their early adoption will afford the patient a remote chance of recovery. Some authors of reputation have recommended the use of digitalis in combination with calomel, as a remedy in acute hydrocephalus. If we suppose the first stage to be treated with adequate vigour, in the manner already recommended, no opportunity will be left for the exhibition of digitalis; as the case will for the most part already have been placed in a state of security. Subsequently to the treatment by sufficient depletion proving unsuccessful, the administration of digitalis could not be expected to do much good until it had been given in a sufficient charge to affect the frequency of the pulse; and by the time such a quantity could be exhibited, the author fears that too much might be required to be perfectly compatible with the safety of its exhibition to young infants. Having accordingly seldom ventured to push its use to the attainment of its undoubted effects on the circulation in very young subjects, he cannot venture to speak with more precision as to its power than Dr. Burns has done in its recommendation. Of this, the simple reason is, that he has never pushed it to its full extent in the treatment of infantile diseases. The fine balancing of an infant's circulation makes it easily extinguishable by strong poisons. In a case of hydrocephalus become chronic by simple duration of the disease without being adequately subdued by the treatment now recommended, the author knows no other mode of treating it with any prospect



of ultimate success than by keeping it with perfect determination of purpose under continuous influence of pretty full doses of calomel, or of blue ointment very freely administered by friction. Although the prospect of recovery under these circumstances is not to be considered as possessing much value, nevertheless the practice recommended affords the best chance, and it occasionally happens, after many balancings of the hopes and the fears of the case, to be at last crowned with success.

VI.—OF THE MORE POPULAR CUTANEOUS AFFECTIONS OF INFANCY.

Some of the diseases of which we have to treat under this head are peculiar to the period of infancy, as their causes are found among those circumstances which occur only at that stage of life ; while others are simply modified forms of affections to which persons of every age are subject. Several of the maladies that are ranged in the same division with those which are strictly cutaneous, ought more properly to be considered as constitutional affections ; the external manifestations being to be regarded only as accompaniments or symptoms of the disease itself. As however this distinction is not generally made by writers on these subjects, the author believes it more advisable, for the sake of convenience, to continue to place these several very distinct affections in their usual anomalous juxta-position.

OF INFANTILE ERYSIPELAS.—The variety of erysipelas which occurs in early infancy is of a gangrenous type, always highly dangerous even in sporadic cases, often infectious, and when so, generally fatal. Lying-in hospitals and closely crowded situations are for the most part the localities in which it is found to prevail. It generally makes its appearance a few days after birth, and most frequently commences about the umbilicus, especially if there be any mismanagement or accidental soreness at the part of insertion of the cord. The pudenda of female infants are also often a centre from which the inflammation originates, in consequence of acrimonious vaginal discharges, depending upon or complicated with great constitutional debility ; and occasionally instances are met with in which the disease is present at birth. It rapidly spreads over the abdomen, thighs, legs, and perineum ; these parts become œdematous, dark-coloured, and vesicated ; while the extremities not uncommonly sphacelate. A general fever of the lowest tone usually attends these local affections ; and the child soon becomes comatose ; in which state it continues until it dies. In treating this complaint, our endeavours

must principally be directed to the constitutional feebleness ; and reliance is almost solely to be placed on the use of quinine in any form or manner in which it can be employed, while, in the first stage of the disease, stimulant applications may be advantageously used locally to the parts.

OF INDURATION OF THE SUBCUTANEOUS CELLULAR TISSUE OF EARLY INFANCY.—Cellular tissue is at all times more prone than other tissues to fall into a state of disease ; and induration is one of the most common forms in which this liability presents itself in early infancy. In children soon after birth a peculiar variety of this induration is sometimes witnessed, which, as it depends upon an effusion of albuminous lymph, is called the *œdema* of new-born children, to distinguish it from the common *œdema* of adults. In popular language, children affected by this complaint are said to be skin-bound. The usual time of its appearance is just after birth ; but it sometimes does not come on until two or three days shall have elapsed ; while in other examples, infants have been born with the disease present upon them. The subjects of this disease are always weak and puny, often observed to have been born prematurely, and to have a peculiar complaining sort of cry, not a little pathognomonic of their peculiar state. The temperature of the skin sinks as the *œdema* proceeds, and the surface becomes dry and fissured. The feet are usually first attacked, and from them the swelling extends upwards with rapidity, involving the abdomen, back, face, and hands. It sometimes occurs simultaneously in all these parts, and is scarcely ever confined to the extremities. The limbs increase ; but the change of bulk is not in proportion to the change of consistence of the tissues. Parts naturally soft and yielding feel firm and hard, and the healthy colour of the skin is turned to a dark red or purple. On pressing the surface, it sinks and shows a dingy-yellow tinge, which however soon gives way to the morbidly red colour of the disease. The application of heat acts exactly in the same manner as if the part affected were destitute of the living principle. Respiration gradually grows more feeble, the face assumes a purple hue, all the symptoms of suffocation arise, and death takes place by asphyxia in the course of about ten days or a fortnight, and occasionally, but not frequently, to a later period.

The character of this *œdema* cannot be mistaken when it is so diffused as it usually becomes ; and if circumscribed in its extent,

it may easily be distinguished from common inflammation by the diminished temperature of the part. The body retains after death all the peculiar external appearance which characterised the disease during life; but the firmness is perhaps somewhat increased. Instead however of the cellular tissue being compact and solid, as the name of the disease would seem to imply, its meshes are found to be filled with a serous or albuminous fluid, either limpid or tinged with blood. When pressed, all the fluid oozes out, and the tissue remains soft and flaccid; and the skin, which before was hard and tense, now rolls under the finger. No very manifest change is perceptible in the appearance of the cellular tissue; although it may possibly be a little more vascular than natural. Such being the actual condition of the diseased tissue, the first observers of the malady would never have applied to it so inappropriate a term as induration, if they had properly examined the bodies of their patients; for the assertion of Dr. Denman that he had seen the cellular tissue in this disease hard and dry, must have originated in some mistake. Some pathologists, not satisfied with this simple explanation of the morbid phenomena, have supposed the effused fluid to possess the property of becoming concrete; and have proposed, on this ground, to draw a distinction between this disease and the œdema of adults. The experiments which were made to support their hypothesis were however not correct; for in all cases of œdema produced by impeded circulation, the fluid which is poured out has in some degree this very property of coagulating when exposed to air and left at rest; and in proportion to the suddenness of the effusion, is the disposition to coagulation augmented. But the coagulation of these fluids never takes place in the cellular tissue itself. There are other morbid appearances observed, some of which are essential to the disease, while others are merely coincidences. The most remarkable of these, is the state of venous congestion everywhere distinctly seen. The lungs, liver, and all soft parts, are apparently gorged with blood, without any mechanical obstacle impeding the circulation through them, so that the appearances are more like those of plethora than of any other condition. The cellular tissue of all the viscera and internal organs, and the submucous cellular tissue, are affected in a similar manner and in a degree corresponding; while serum is poured out into the serous cavities. The cause of this disease is said by some to be acute inflammation of the



lungs, or of some of the viscera ; others however have attributed it to imperfect occlusion of the foramen ovale. But neither of these conditions is at all essential to the disease ; since it is often seen where the formation of the heart is perfectly natural, and where no traces of inflammatory action are discoverable in any part of the body ; the state of general congestion being all that can be ascertained to be morbidly wrong. Cold has also been mentioned among the exciting causes : but it is remarked that the disease occurs equally in hot as in cold weather. Inflammation of the mucous membranes is another reputed cause of this disease. But if it were so, indications of its presence would more uniformly be detected : whereas the rarity of its occurrence would rather lead us to regard it as a mere coincidence. Some pathologists again have advanced the notion of a state of congenital plethora being the cause of all the phenomena which present themselves as constituents of this malady ; and have supposed the disease to arise from the regurgitation of this surplus blood, in consequence of some obstruction to the course of the circulation.

Very little can be said as to the indications of the treatment of the complaint from what we know of its morbid anatomy. General bleeding has been proposed. But the appearance of great feebleness of the little patients, the subjects of this disease, has usually led to so early a conviction of their inability to bear the loss of blood, that the employment of dry heat and dry friction has been resorted to as likely to answer a better purpose ; which, however, has been assumed more from theory than from any good evidence derived from experience of their utility. This disease is very rarely met with in private life. It has, however, been frequently seen in the Parisian hospitals, where the air is often unsalubrious, and where epidemic diseases take on very severe forms. It has occasionally visited one or two of the lying-in hospitals of London.

OF JAUNDICE.—The diffusion of a yellow tinge over the surface of the body of new-born infants is so common an occurrence, that almost every child becomes the subject of it within the first week after its birth. It is the mildest form in which jaundice ever appears, and indeed scarcely requires to be spoken of as a disease. The only symptoms which, in ordinary cases, may be noticed in connexion with the discoloration of the skin, are a slight degree of drowsiness and languor. Its cause is confidently asserted by

some writers to be absorption of the meconium ; but it more probably originates in some obstruction to the free escape of the bile from the ducts and gall-bladder ; and this, in almost every instance, appears to depend upon the presence of a large quantity of meconium of a viscid nature adhering to the mucous membrane of the intestines, and clogging up the orifice of the ductus communis choledochus. The treatment, whenever any interference is necessary, simply consists in the administration of a mild aperient ; or, if that alone should not suffice, an emetic may be afterwards exhibited with much advantage.

OF VENEREAL ERUPTIONS AND AFFECTIONS OF THE SKIN.—Children when in utero are sometimes brought under the influence of syphilitic infection ; and premature labour, with the death of the foetus, is generally the result. More commonly, however, the child at birth has no external marks of the disease, and may be well grown and apparently healthy ; or, as now and then happens, the case may present the character of great feebleness and marasmus, exhibiting very strikingly the similitude of a wrinkled old man in miniature. In the course however of about a fortnight subsequently, traces of the presence of the venereal poison in the system begin to show themselves, and copper-coloured eruptions come out in the neighbourhood of the genitals and nates, or else about the mouth. Dr. Bateman states, that syphilitic affections of the skin usually make their first appearance on the face, where they are often copious, and on the hands or wrists. The disease having once thus manifested itself, goes on increasing in the severity and extent of its symptoms, unless its progress be checked by the judicious use of mercury : and in children whose constitutions are not wholly undermined by it, we may generally calculate upon its eradication by the regular exhibition of half a grain of calomel three times a day, until the system shall be fully brought under the influence of the remedy, or its effects shall be made apparent by a slight approach to soreness of the mouth and gums. This dose of calomel will be found to act upon the majority of children without passing off by the bowels, even when unprotected by opium. At the same time that we are pursuing these remedial measures with the child, it must be ascertained, if possible, where may be the source of the contagion ; so that we may be enabled to take all the necessary precautions to prevent any impediment to the cure of the disease which might result from continued communication

with it. If the mother or nurse be the infecting party, it will be of importance to place her at once under a course of mercurial medicine ; a plan which is adopted by some when the mother is suckling, as the best method of administering the remedy to the child. If the nurse be healthy, there will be considerable danger of her receiving the venereal poison from the diseased infant : for as soon as the child's mouth becomes affected by the disease, the nipples are also almost sure to become sore and ulcerated. To obviate this evil in cases where there is risk of conveying the contagion from the child to the nurse, the system of the latter ought to be protected by mercury, and the nipples kept from direct contact with the child's mouth by the use of the shield. As a measure of safety, this latter precaution is of great importance, and should never be omitted.

OF CRUSTA LACTEA OR MILK BLOTCH.—This disease consists of a pustular eruption, which principally spreads over the face, unaccompanied by much constitutional disturbance, almost exclusively peculiar to the age of infancy, and prevailing chiefly during the period of lactation. It usually commences about the forehead or cheeks by the eruption of a cluster of whitish pustules, with red and inflamed bases. As these pustules mature and the discharge escapes, the several distinct pustules are uniformly covered over with thick and yellow scabs. In very severe cases, which however are seldom seen, the eruption sometimes extends over the chin and neck ; and then, from the excessive local irritation and the profuse discharge, the general health suffers detriment, the appetite is impaired, mesenteric disease supervenes, and the child dies with all the usual symptoms of that affection.

The urine of children who have this eruption upon them is said to emit a smell similar to that of cats ; but this assertion is not true in reference to the disease generally ; since, in the particular cases in which the odour was recognised, the *viola tricolor* had been administered as a specific ; and, we have the evidence of Dr. A. T. Thomson, that that plant possesses the peculiar property of impregnating the urine of those who take it with the odour in question. The cause of this disease is evidently a plethoric condition of the body ; and the eruption is sometimes excited by the use of improper diet, or by indulgence in unwholesome fruits. It is also in some cases an accompaniment of dentition. There is likewise undoubtedly in most of the children



who suffer from this complaint, an hereditary predisposition to it; so that if it be known to have attacked either the father, mother, or elder children, it may almost with certainty be anticipated in those that are to succeed. The eruption may generally be lessened, and the irritation attending it moderated, by lowering the diet both of mother and child, and by giving the child aperient and alterative medicines. Local applications have been recommended by some as a sure means of removing the complaint; and the sulphate of zinc has been much extolled, both as a lotion and as an internal tonic. Corrosive sublimate has also been said to have a healing tendency; but the truth is, that the eruption is seldom much dispersed until the child begins to run about, and to take more active exercise than simple nursing affords. In extreme cases bleeding has been resorted to.

OF SCALDHEAD.—Ringworm, or the *Porrigo Scutulata* of Bateman, is scarcely to be called an infantile disease, as the more usual time of its appearance is about the age of four or five years. It however sometimes is seen in very early infancy; and accordingly the author notices it, not so much for the purpose of entering upon its pathological history and description, as of recording his testimony to the efficacy of the plan of treating it by frequently shaving the head, and very freely applying dilute nitrate of silver to the parts where the morbid action is going on, let the eruption be in what condition it may. The proportion of about ten grains of nitrate of silver to an ounce of distilled water will generally answer our purpose very well.

OF IMPETIGO.—This disease belongs to the same class of pustular affections of the skin as the last, and generally presents an extensive, hot, and fiery eruption. The pustules are numerous and of a dark red or blue appearance, and are attended by an intolerable itching and great constitutional disturbance. A predisposition to the disease seems to exist in children of a quick and sanguineous temperament, who are easily excited, and in whom accidental irritation is productive of considerable vascular derangement. Hence the eruption is very frequently brought on by the process of teething, and sometimes continues until after the second dentition is completed, and even to the period of puberty. In young children, a very common seat of the eruption is about the flexures of the joints; but it also is not seldom scattered over the whole body; and when that is the case, the disease proves exceedingly obstinate, and the irritation

is so intense as to prevent rest and to undermine the general health. Every now and then the eruption is met with in the same situations as the common itch, and excites very unnecessarily alarm and anxiety. Impetigo has not so much the character of an hereditary disease as the milk-blotch, or *crusta lactea*.

The treatment requires the employment both of local and constitutional remedies. Mercurials and active purgatives must be internally administered, and the child and its nurse placed upon low diet. Cooling lotions and applications are sometimes useful in allaying the irritability of the eruption; but the most efficacious topical remedies are the sulphur ointment, or the common cerate slightly impregnated with red precipitate. Dilute sulphuric acid, in the proportion of twenty or thirty drops to an ounce of cerate, is also a very good application. Bathing the child in lime-water sometimes proves serviceable; and the black-wash and a solution of superacetate of lead have, in some instances, been found of great utility. General bleeding is, in almost all cases, an indispensable preparative for the trial of other measures. Even in cases which resist all plans of treatment, the disease generally wears itself out, if due attention be paid to cleanliness, exercise, and regimen.

OF STROPHULUS.—This is essentially a disease of early infancy. In the nosology of cutaneous diseases by Willan and Bateman, several species are enumerated, and their distinctive characters attempted to be pointed out. So little practical use, however, is there in these minute niceties of description, that, in the present account of this affection, the author proposes simply to refer to the several peculiarities of appearance which the eruption assumes in different subjects, and sometimes, indeed, in the same individual, in one continuous statement. The eruption is papular, and principally confines itself to the face, neck, and arms; in some few cases, however, where the exciting causes are long-continued and active, and the predisposition strong, it becomes general over the whole body. The papulae which break out upon the skin of very young infants are usually of a bright-red colour, seen in clusters, and surrounded by diffused redness of the skin. At a more advanced age, they are often less inflamed in their appearance, whiter, harder, and occasionally have an erratic disposition, or a tendency to spread very extensively over the surface of the body. During the month a copious eruption

of the more inflammatory appearance very frequently breaks out upon the cheeks and arms of healthy and robust children, who are too well supplied with milk, or suckled by a female whose milk is of bad quality, or in whom there is any accidental acidity of the stomach or *primæ viæ*. In such cases the eruption is not of a nature to excite any uneasiness, as by attending to the indications of treatment so clearly derived from the circumstances of the case, such as correcting the acidity of the stomach by the ordinary remedies, lowering the diet both of the child and its nurse, and enjoining more free exercise in the open air, all the unpleasant symptoms will quickly vanish. Care, however, must be observed, that the infant is not too much exposed to cold, or made to experience sudden vicissitudes of temperature; since, if the eruption be repelled, a circumstance which negligence in these matters may very probably occasion, more serious constitutional effects might be apprehended than would ever arise in the natural progress of the complaint. In the event of such an accident, the course to be pursued for the restoration of the eruption, would be to place the child in a warm-bath, and to administer some slightly cordial or stimulant medicine. When recession of the eruption does happen, the child generally suffers from diarrhœa, sickness, or convulsions; and a smart attack of thrush has also in some cases been the consequence. On the return of the cutaneous affection, all the constitutional illness commonly ceases. As a prophylactic measure against any untoward striking in of the eruption, the nurse should be directed to attend to the ablution of the child; which ought, indeed, in order to promote an equable perspiration over every part of the surface, to be kept perfectly clean by washing it daily with tepid water. In treating the ordinary forms of the disease, we must be cautious not to employ very active purgatives; as the eruption has been driven inwards by such means. It will sometimes be found necessary in obstinate cases to change the nurse, especially if the milk shall have been uninterruptedly flowing for several months. An eruption that had resisted all the usual measures adopted for its relief has been known to cease immediately upon the adoption of such a change. At the period of dentition, children especially of delicate skin and irritable habit are also very liable to a recurrence of this eruption, in consequence of the sympathy which the integuments of the face in particular have with the contiguous and continuous mucous membrane



lining the mouth and gums; where the irritation produced by the new process is generally very intense in such subjects. An obvious mode of speedy relief under these circumstances, is a deep, extensive, and, when necessary, crucial incision of the gums over the projecting teeth. When this salutary and truly indispensable step has been overlooked, the eruption has been known to become dispersed over the surface of the whole body and extremities. This is perhaps the severest form in which this affection ever shows itself, and is noticed by Dr. Willan under the name of *strophulus confertus*.

OF SCURFINESS OF THE HEAD, OR DANDRIF. — This affection, which is the *Ptyriasis* of authors, is one to which many children, and especially those of uncleanly parents, are subject at a very early age. It simply consists of the separation of a succession of branny scales of a small size from the forehead and scalp, and is unproductive of any general symptoms worthy of remark. If unattended to, however, these scales are apt to accumulate, and at length prove a source of considerable irritation, giving rise to the eruption of a crop of pustules. All that is necessary in managing this affection is to observe the strictest cleanliness, shaving off the hair, brushing and well washing the scalp with soap and water. A similar condition of the skin of the head is very frequently seen in bald and elderly persons.

OF VACCINIA. COW-POX. — This is an affection by no means peculiar to infants, nor indeed to man at any period of his life. It is one of those diseases which have been accidentally grafted upon the human species from an inferior animal; but, unlike some others, derived from similar sources, has secured to it unexpected benefits, instead of introducing new modes of suffering and death. Its real origin is still involved in somewhat of obscurity; some authors asserting, in common with Dr. Jenner, its identity with the disease called the grease in horses; others maintaining it to be a modified form of small-pox; while a third class contend that it is peculiar to the cow, from which animal it was first transferred to man. Whatever may be the truth as to these matters, the question is but of secondary importance; and to enter now upon its discussion would be a frivolous expenditure of the author's present very limited space. The history of the casual communication of the disease to man, of the first popular notice of the fact, of the discovery of its protective powers by the milking graziers, of the local circulation of this traditionary

knowledge, its contact with the ingenious and penetrating mind of Jenner, the enthusiasm which it kindled in his breast, the industry he displayed in examining its truth, the tardy and modest announcement of the valuable result of his labours, the unwilling belief which was accorded to him, the prejudices and slander of his ignorant calumniators, and the final triumph over all the difficulties of envious misrepresentation and malicious opposition; all this clearly proved and well authenticated, presents to the mind of the scientific inquirer a most inspiring and consolatory theme of reflection, while it inflicts upon ignorant scepticism one of the severest rebukes to which such unworthy obstinacy was ever exposed. The peculiarities of this disease were first noticed in Dorsetshire among the milkers of dairy farms, who were found to be made exempt from the influence of the contagion of small-pox, by having been previously subjected to that of a pustular disease which they contracted from similar ulcers affecting the udders of their cows. A notion of this kind was very general throughout the dairy counties of the West of England before the time of Jenner's investigations; and indeed his attention was first drawn to the subject whilst an apprentice at Sudbury, by overhearing a country-woman say in his master's surgery, that "she could never take the small-pox for she had had the cow-pox." His curiosity was thus accidentally aroused; and from that time he commenced the collection of information respecting the disease. Whilst subsequently practising at his native place, Berkeley, in Gloucestershire, he in vain made several attempts to obtain the co-operation of his medical friends to carry on the necessary inquiries. At length, in the year 1796, without any assistance, and in the face of ridicule, he made his first experiment in inoculation, in order to prove the correctness of a notion which he had long cherished, that the disease would afford equal preservation from small-pox, whether received from the cow, or subsequently conveyed indirectly by transmission from one human subject to another. The trial succeeded, and Jenner in this way demonstrated the fact that security against the small-pox could be ensured at pleasure.

He prosecuted these investigations for two years, and in 1798 communicated to the public an account of his discoveries. Amidst much ill-treatment and abuse excited by this proceeding, he had the satisfaction of obtaining the support of most of the more eminent in the profession; and of meeting with the approving

notice of the Royal Family, by whom he was aided and encouraged in his endeavours to extend the benefits of vaccination, not only in this country but over every part of the world. In consequence of his exertions, now equal in importance and extent to anything that his most sanguine hopes could have pictured, their continued good effects are universally acknowledged.

Various attempts have since been made to detract from the merit of Dr. Jenner. By some it has been said that the practice of vaccination is of ancient date among the Hindoos; and that its preservative powers were well known to that people. But the authority of the modern Hindoo writers is to be considered as always more or less disputable; and the numerous instances of their fraudulent deception and arrogant assumption of unfounded claims which have become known to us, lead to a just suspicion of the validity of their testimony in the present instance. With equal confidence we feel ourselves authorised to repel the invidious insinuation made by Dr. Husson, the writer of the article *Vaccine* in the *Dictionnaire des Sciences Médicales*, an early friend of Dr. Jenner, who, with discreditable inconsistency, raised a claim to the French origin of the practice of vaccination. This person goes so far as to pretend to point out the course by which information of the nature and object of vaccination was transmitted from one individual to another, commencing with a Monsieur Rabaut, a Protestant clergyman at Montpellier, until it was disclosed to Jenner, to whom he is consequently unwilling to allow any of the merits of original discovery or priority of adoption. The bold impudence of this attack, made in the year 1821, upon a hitherto accredited historical fact, and one from which no other French author had withheld his assent, requires indeed no more considerate treatment than that of unqualified denial of its truth.

In the cow, the disease exists in the form of a vesicular eruption on the udder and teats, PRINCIPALLY during the spring and autumn months. These vesicles are at first of a pale blue or livid colour, with a depression in their centre, and are surrounded with an erysipelatous inflammation. They contain a transparent watery fluid, and the parts in their immediate vicinity become hard and inflamed. If care is not taken to prevent them from being rubbed, they burst, and give rise to a foul deep-eating ulcer, which is obstinate and troublesome to heal. Sometimes the cow appears to be sick, and yields less milk than usual; but



this is not a frequent occurrence. By contact with the diseased parts, vesicles of a similar character are produced upon the hands of those who milk the cows, if there happen to be about them any cuts or abrasions which will admit of the absorption of the matter of the sores. Most frequently the vesicles arise about the joints or extremities of the fingers. Febrile symptoms precede and accompany the course of these vesicles, and are sometimes found to become of no inconsiderable violence. These, however, are generally mitigated about the seventh or eighth day, when the vesicles have arrived at their perfect state, and are beginning to subside, unless indeed they have degenerated into ill-conditioned sores, and secondary symptoms of glandular affections have come on in the course of the absorbents and in the axilla. It also occasionally happens that from the very contagious nature of the matter secreted by the ulcerated surfaces, new vesicles are excited on all those parts of the body to which any of it may be casually conveyed, and thus the constitutional irritation is so prolonged as somewhat to affect the general health.

OF INOCULATED COW-POX.—When artificially introduced into the system in the ordinary way of vaccination, by the application of a small portion of the limpid fluid contained in the vesicle at an early period after its formation, to a slight and superficial incision in the skin, the disease presents none of those local and constitutional severities which have been noticed as frequently developing themselves in cases which originate in the natural manner. On the third day after the incision and application of the virus, a spot of inflammation shows itself, which, if minutely examined on the fourth or fifth day, is seen to have for the centre from which it spreads a small, semi-transparent, pearl-coloured vesicle with a circular, hard, and somewhat elevated base. The vesicle is seldom otherwise than circular in its form, having a well-defined margin, with a central depression, the circumference being tense and shining. The interior of the vesicle is composed of a number of little cells communicating together, and filled with a clear and colourless lymph. On the eighth or ninth day after the insertion of the virus, an inflamed halo or areola extends equally in every direction round the vesicle for the space of about an inch or an inch and a half; the cellular tissue beneath the skin being only in some slight measure inflamed, so as to render the part hard and tumefied. On the tenth and

eleventh days this areola beginning to subside, the fluid in the vesicle concretes, and a brownish scab is formed, which is not in general detached for ten or twelve days more. Some slight febrile symptoms usually make their appearance during the formation of the vesicle; but they rarely amount to such a degree of importance as to require the interference of the practitioner; some mildly aperient or saline medicine being quite sufficient to afford the necessary relief. The routine practice adopted by some medical men of administering a course of medicine throughout the progress of the affection, partly perhaps in compliance with the prejudices of many parents, is altogether superfluous, if not absolutely injurious. There are in some instances deviations in the appearance and progress of the vesicle, from what has been described as usually occurring after skilful and judicious vaccination. In all such cases, however, no reliance can be placed on the degree of security presumed to have been attained against the accession of small-pox, and the operation requires repetition. Sometimes a large pustule rises up, charged with a thick, creamy, tenacious matter; sometimes irregular vesicles are produced, differing in most of their characteristics from the true vaccine pustule; and occasionally mere ulcerations supply the place of vesicles. All other different forms of eruption are manifestly spurious and of no avail. For the purposes of vaccination lymph should be taken from a perfect vesicle before the seventh, or at latest the eighth day, and inserted without delay into a very superficial scarification; so that its infecting powers may not be decreased by dilution with too great a flow of blood. In order also to facilitate the due reception of the disease into the system, the age and healthiness of the subject should be regarded.

Experience has demonstrated, that no age is so favourable for the complete success of the operation as the first four months of life. The habit then seems to be brought more fully within the reach of the impression to be made by the disease; so that its protective influence is more certain and permanent, than when its communication has been deferred to a later period of life. In accordance also with what is well known with regard to the usual eruptive diseases of infancy, the constitutional effects are altogether insignificant. One of the most usual sources of disappointment connected with the employment of vaccination, as a prophylactic measure, is, the oversight sometimes committed of the presence of some other cutaneous or febrile affection at the time

of its insertion. The pre-occupation of the skin by the eruption of measles, scarlet fever, chicken-pox, or indeed the existence of any indisposition, is often quite sufficient, if not to prevent the communication, at least so to modify the nature of the cow-pox, as to render it totally inert, or unworthy of dependence. Previous effective vaccination, or subjection to small-pox, also interferes with the regular course of the vesicles produced by subsequent vaccination.

It is now attempted, as upon its first introduction, to advocate vaccination as a universal security against the invasion of small-pox; but, though this admission of its occasional failure must be made, yet the fact is no less important and interesting, that small-pox succeeding to cow-pox is most materially modified in its characters, and, indeed, it may be said, comparatively deprived of its fatality. The incompleteness of the protection at present afforded by vaccination, cannot be made use of as a valid objection to the practice, since it is unquestionable that much of the uncertainty now attending it is owing either to carelessness in the operator or to ignorance or negligence of the pathognomonic evidences of the normal progress of the disease. This will more evidently appear if we attach its due importance to the fact, that scarcely any, and in some years not one, of the patients of the Small-pox Hospital, admitted under small-pox after vaccination, had been vaccinated by any officer of the National Vaccine Establishment. It is an interesting observation that some of the most melancholy and inevitably fatal cases, which used formerly to fall under the care of the obstetric physician, were those in which an attack of small-pox supervened during the puerperal state. Loss of life almost uniformly ensued both to mother and child. Such cases still occur; but, through the agency of vaccination, they are encountered with a very different result. It has happened to the author to have witnessed two instances of the beneficial influence of vaccination under these circumstances, within the last two years. Both of the females had undergone vaccination, and bore the marks of the genuine vesicle. Symptoms of small-pox began to evince themselves very shortly after the delivery; a severe but transient febrile paroxysm occurred, and was succeeded by the appearance of a well-marked, though not very copious eruption of variolous pustules, which however, upon its declension, left several permanent and well-defined scars. The



children of both patients were vaccinated upon the first alarm, and escaped the contagion of the disease. Both mothers recovered.

It is now unnecessary to bring into array any arguments to prove the safety, utility, and various advantages of vaccination. Conviction has kept pace with information, and the stubbornness of facts has overcome the stubbornness of prejudice. Forty years have scarcely yet elapsed since Jenner announced his discovery. Already its efficacious application is felt in every region of the earth; and a fact not very prominent in the history of the greater number of human inventions and discoveries, stands out in bold relief as one of the remarkable points in that of vaccination, viz. that the civilized and the savage equally enjoy the boon. Although, then, we are called upon neither to argue nor to persuade, while we may and ought to be zealous in our endeavours to carry into effect the philanthropic designs of those who would convey to all mankind the blessings and benefits of vaccination: although we may in private, when looking back through the records of epidemic diseases, congratulate ourselves upon an almost total exemption from the terrible visitations of what was to our ancestors a sister-scurge to the plague, one other duty still waits fulfilment. A deep obligation imposes itself upon us, and upon every author who alludes to this subject, to bear the most studiously emphatic testimony to the merits of Dr. Jenner; and whether as an individual, or as a member of society, to acknowledge equally a sense of the gratitude due for our participation in so great and lasting a benefit as that which, through his sagacity, perseverance, and disinterested benevolence, has been conferred upon the world.

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